THE LOCAL ECONOMIC IMPACTS OF THE CONVERSION AND RE-USE OF TRADITIONAL RURAL WORKING BUILDINGS

By

CHRISTOPHER LESLIE BELL

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As well as their intrinsic value, derived from factors such as their historical significance and meaning, redundant traditional rural working buildings have the potential for instrumental value through being economic assets that can accommodate alternative uses. The conversion works and subsequent re-use can impact upon the locality in terms of income generation and employment creation, thereby supporting local economic development. However, the extent of this local economic impact rests on the expenditure patterns of the building owner and user.

Drawing on a mix of exogenous and endogenous growth theories, the study investigated the local economic impacts of converting and re-using redundant traditional rural working buildings. The focus was on the local economic impacts that were measurable spatially at the sub-regional level. The fieldwork was conducted with the collaborating partner, the National Trust, and primary data was collected from 30 traditional rural building conversion projects across England. The local economic impact of both the conversion works process and the subsequent re-use of the building were analysed. A modelling framework, drawing on the principles of Keynesian multiplier analysis and Local Multiplier 3 (LM3) modelling, was used to generate a range of estimated income and employment multipliers according to distinguishing characteristics of the buildings. In total, 12 building conversion works and 14 building re-use models were produced.

The building characteristics with the largest conversion works income multipliers included: animal housing buildings, listed buildings, and buildings converted for manufacturing purposes. For building re-use, the characteristics with the largest income multipliers included: animal housing buildings, Accommodation and Food Services SIC class and let buildings. A guidance document was produced based on the findings to aid the National Trust with the consideration of local economic impact in future traditional rural working building conversion projects.

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of the University of Gloucestershire and is original except where indicated by specific reference in the text. The study was funded by an ESRC CASE Studentship with the National Trust as the collaborating partner.

No part of the thesis has been submitted as part of any other academic award. The thesis has not been presented to any other education institution in the United Kingdom or overseas.

Any views expressed in the thesis are those of the author and in no way represent those of the University.

[redacted]

Signed ……… …………… Date …30 September 2013

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CHAPTER 1

INTRODUCTION AND BACKGROUND

1.0 Introduction

This study is an Economic and Social Research Council (ESRC) Collaborative Award in Science and Engineering (CASE) project. ESRC CASE projects are designed to promote collaboration between the academic and non-academic sectors with the rationale that academic research has much to offer the non-academic sector. The aim is to make the research of applied relevance to the collaborator who in this instance is the National Trust. The study is therefore designed and executed in the context of the National Trust's purpose and activity to ensure that the research outcomes are indeed relevant and of benefit. Before an introduction to the National Trust is given, some further context for the research will be provided.

1.1 Traditional rural working buildings and rural change

As described by Slee (1999) and Hodge and Midmore (2006), there has been a shift in the demands placed upon rural areas and a shift in the focus of rural development policy. The rural development policy shift from a primarily agricultural focus to the acknowledgement and support of other economic sectors as well as social issues reflects the shift in how rural areas are viewed. Furthermore, as well as being viewed as production spaces where people live and work, rural areas are now also valued for their cultural and natural heritage. There has been a growing recognition of the value of the rural landscape which has led to concerns over how to manage the effects of the changes in rural areas (Antrop 2005; Selman 2004). In particular, structural change within agriculture has resulted in large numbers of traditional farm and other working buildings becoming functionally redundant for their original purpose. This has created a series of policy and management dilemmas associated with the role of traditional rural working buildings as historic, scenic and economic assets within rural areas and in the development of rural economies.

It is estimated that between 800,000 and 1.2 million traditional farm buildings alone survive in England (Gaskell and Owen 2005). This means that traditional rural working buildings, including traditional farm buildings are among the most ubiquitous of traditional building types in the countryside. They are not only fundamental to its sense of place and local distinctiveness, but also represent a major economic asset in terms of their capacity to accommodate new uses (Ball *et al.* 2006; van der Vaart 2005). The owners of these buildings can find themselves caught in the middle of trying to manage the different demands placed on the buildings and the National Trust is a particularly interesting example. As will now be discussed, the National Trust seeks to balance heritage conservation, including the conservation of traditional rural working buildings, with the promotion and support of rural development.

1.2 The National Trust

The National Trust is an independent UK heritage conservation charity, founded by volunteers in 1895, with the statutory purpose and obligation to protect places of natural beauty or historic interest for the benefit of the nation. It protects and opens to the public over 350 historic houses, gardens and ancient monuments. It also cares for forests, woods, fens, beaches, farmland, downs, moorland, islands, archaeological remains, castles, nature reserves and villages. The National Trust currently has in excess of 3.7 million members and 61,000 volunteers. Each year more than 17 million people visit the National Trust's 'pay for entry' properties while an estimated 50 million people visit its open air properties. Volunteer involvement is supported by a network of property, regional and central staff with specialist skills and knowledge (National Trust 2013).

Virtually all National Trust land is held 'inalienably', meaning that it can never be sold, and so there is very much a long-term view with regards to land and property management. The National Trust's land holding is a largely rural estate of over 245,000ha. The National Trust also owns around 50,000 buildings including 228 mansions, 5,000 cottages, 700 farms and 57 villages. Furthermore, the National Trust has more than 1,100 farm tenants and employs more than 3,000 permanent staff and more than 3,500 seasonal staff. It is therefore connected to a wide range of rural businesses and community-based activity. Its position statement on rural policy (National Trust 2010b) includes the following:

> "It is important to promote a participative economy driven by local initiative and enterprise [and that] such an economy [will] draw its strength from the particular resources of the region: landscape, food, skills, traditions etc. rather than relying on major inward investment."

The National Trust views itself as not only an important conservation organisation but also as a major employer and regeneration agency which invests in parts of the country that may otherwise be bypassed by normal market forces (National Trust 2005). The National Trust's current strategy, Going Local (2010a), recognises that the natural and human resources of an area are the basis for sustainable development. The strategy emphasises the importance of engaging with and supporting local communities in rural areas and it is the National Trust's intention that its properties are the 'centre of life' in rural communities.

This local engagement is to include advocating local procurement and recruitment policies, which demonstrates a desire to support the local economies within which the National Trust's properties are situated.

However, there are two important points to note regarding National Trust policy. The first is that the National Trust is, above all, a conservation organisation and everything else is secondary to that. The implications of this for converting and re-using historic buildings are discussed in section 1.2.1 but essentially any change or development is advocated only if it does not conflict with the National Trust's conservation objectives. The raison d'être of the National Trust can therefore be a barrier to rural development if there are strong conservation reasons for not permitting a change. The second point to note is that National Trust policy is more focused on sustainability than on development. As well as not conflicting with conservation objectives, any proposed change or development has to be shown to be sustainable. The National Trust takes a long-term view with regards to asset management and it will only permit changes which will not become a drain on its finite resources, even if the changes were to have a positive impact. This policy can be a barrier to rural development if the National Trust considers something that has a relatively large positive impact to be unsustainable. Despite the limitations of its policies on conservation and sustainability, the National Trust does aim to support rural development and the conversion and re-use of historic rural buildings is part of this.

1.2.1 The National Trust and adaptive re-use projects

The National Trust's term for converting and re-using historic buildings is *adaptive re-use.* This is a reference to the National Trust's definition of heritage conservation as the careful management of change. For the National Trust, the conversion and re-use of historic buildings involves adapting those buildings to accommodate change as part of their conservation. As explained in the National Trust's own guidance note, *Adaptive Re-use of Historic Buildings* (National Trust 2008), many of the National Trust's traditional rural working buildings are no longer fit for their original purpose for reasons such as structural changes in agriculture and the decline of traditional industries. However, the guidance note acknowledges that these buildings can still contribute to the local economy and cultural heritage if enabled to do so through adaptive re-use. Furthermore, the National Trust views adaptive re-use as a contributor to its Going Local strategy. The guidance note states that adaptive re-use can add value to the local economy through the improvement of the building and that this process could support traditional building skills in the local area. Also the new use of the building may provide opportunities to reach out to new groups in addition to supporting the local community. The National Trust therefore recognises that there is potential, both commercial and cultural, locked up in functionally redundant buildings and they strive to release this whenever they carry out an adaptive re-use project.

The National Trust seeks to consider all possible impacts of proposed adaptive re-use projects on the natural, cultural and social environment through various means. However, it is noted that socio-economic impacts such as the creation of new employment opportunities and new sources of income for the local economy are not quantified as part of the National Trust's current social impact assessment. To contribute fully to the 'Going Local' strategy, there is a need for the National Trust to understand the value and impact of adaptive re-use projects on the local economy. Therefore a requirement of the present research is to provide guidance on the local income and employment multipliers which arise from the adaptive re-use of traditional rural working buildings. The National Trust can then use this guidance in their social impact assessment process to consider the local economic regeneration potential of its adaptive re-use projects.

The National Trust's difficulty is in finding the balance between its duty to conserve the nation's heritage and its desire to promote rural development. The research interest here relates to how the National Trust manages these roles and so there is a need to understand the conceptualisation of heritage and heritage conservation. There is also a need to understand how rural economic development is conceptualised and the role that the adaptive re-use of buildings plays. These needs have informed the development of the research questions and the subsequent discussions of heritage and rural economic development.

1.3 Research aim and objectives

In order to address the National Trust's needs, this research aims to examine the local economic impacts of traditional rural working building adaptive re-use projects. To achieve this aim the research has the following objectives:

- To develop an understanding of how built heritage, along with its conservation and utilisation, is conceptualised and valued in current theoretical and policy contexts.
- To examine the theories of rural economic development and assess the approaches taken to regional and sub-regional economic modelling.
- To examine, through case studies, the local economic impacts of the conversion and re-use of traditional rural working buildings, modelling the direct, indirect and induced effects through an LM3 approach.

- To develop guidance for the National Trust on the local economic impacts of traditional rural working building conversion and re-use projects to inform decision-making.

The first of these objectives will be addressed later in this chapter through a discussion of the conceptualisation of heritage and its conservation and management. This is important for understanding the subjects of the research, which are traditional rural working buildings, as heritage assets. Chapter two considers the theories of rural economic development and presents a conceptual model for the research. It is necessary to consider the theories of rural economic development in order to examine how the conversion and re-use of traditional rural working buildings can help support it. Chapter three assess the LM3 approach and discusses why it was selected. The full research methodology is contained in chapter four and chapter five presents the descriptive results of the research. In chapter six, the results of the economic modelling demonstrate the local economic impacts of the conversion and re-use of traditional rural working buildings and the development of the guidance for the National Trust is discussed. Finally, chapter seven discusses the findings in relation to the existing literature and draws out the implications of the findings for local economic development and heritage values. It also discusses the use of the findings by the National Trust, the limitations of the research and areas of further work that could be undertaken.

The remainder of this chapter provides some further background which contextualises the work, namely the conceptualisation of built heritage and conservation. The management of historic buildings and planning considerations are also discussed. The conceptualisation of built heritage, as well as its conservation and management, are important as the values placed upon built heritage must be understood before the conservation and management of built heritage can be considered. The planning system is also an important part of heritage conservation as it provides the legal and policy framework. In particular, both the UK Government and the National Trust have planning policies which aim to support rural development while at the same time protecting the historic and natural environment.

1.4 The conceptualisation of built heritage

In this section, the conceptualisation of heritage and built heritage will be discussed. Heritage is a difficult concept to define but it is necessary to understand it to examine how the National Trust takes account of it. The most common approach taken to conceptualising heritage is through the epistemology of social constructionism. Social constructionism formally entered the sociological vocabulary through Peter Berger and Thomas Luckmann's *The Social Construction of Reality* (1966). Berger and Luckman argue that there is no intrinsic meaning in anything and instead observers construct meaning. The social element acknowledges the collective generation and transmission of meaning through multiple social actors (individuals, groups or organisations) socially constructing their reality (Blaikie 2007). Blaikie adds that social actors conceptualise and interpret their own actions and experiences as well as the actions of others, therefore different cultures and communities are likely to have different constructions of social reality. Social constructionism is therefore a useful way of considering how heritage and the historic environment are valued by different groups in society.

Heritage is capable of being interpreted differently within any single culture at any given time as well as between cultures and through time (Ashworth and Graham 2005) and as Tunbridge and Ashworth (1996) state, "all heritage is someone's heritage and that someone determines that it exists" (p. 6). In terms of a social construction, heritage can thus be conceptualised as "the meanings attached in the present to the past" (Graham 2002, p. 1003). Graham also regards heritage as knowledge, defined within social, political and cultural contexts, maintaining that heritage concerns the ways in which very selective material artefacts, mythologies, memories and traditions become 'resources for the present.' This reflects the opinion of Tunbridge and Ashworth (1996), who suggest that heritage is what contemporary society chooses to inherit and to pass on and therefore heritage is really a contemporary *product* shaped from history.

International heritage protection organisations also acknowledge the social constructionist view of heritage. According to The International Council on Monuments and Sites' (ICOMOS) *Narra Document on Authenticity* (ICOMOS 1994), it is not possible to base judgements of values and authenticity within fixed criteria as all judgements on values attributed to cultural properties, as well as the credibility of related information sources, may differ between and within cultures. The document proposes that heritage properties must be considered and judged within the cultural contexts to which they belong. In their principles on historic timber structures (ICOMOS 1999b) and architectural heritage (ICOMOS 2003), ICOMOS proposes a multi-disciplinary approach with consideration for cultural context, and again this suggests that heritage can have multiple meanings and interpretations.

Conceptualising heritage as a collection of multiple social constructions raises the possibility that they might not sit comfortably with one another. Tunbridge and Ashworth (1996) suggest that there is indeed dissonance in heritage because of the discrepancy, incongruity and conflict arising from the different social constructions. The implication is that the identification, regulation, use and management of heritage by one group can affect the cultural, social, economic and environmental well-being of other groups (Tunbridge and Ashworth 1996). Graham (2002) also supports this view that dissonance is intrinsic to heritage and he suggests that the multiple uses and interpretations of heritage immensely complicate any assessment of its role.

In the UK, the scope of heritage is now generally agreed to include the ‘tangible’ and the ‘intangible’ as well as ‘environments’ (Ahmad 2006) but the first instance of heritage protection legislation, the *Ancient Monuments Protection Act 1882*, shows that in the past only tangible heritage was formally recognised. English Heritage (2008) now view heritage as being “all inherited resources which people value for reasons beyond mere utility” (p. 71) and they distinguish between cultural heritage and natural heritage. Cultural heritage refers to the inherited assets which people identify and value as a reflection and expression of their evolving knowledge, beliefs and traditions, and of their understanding of the beliefs and traditions of others (English Heritage 2008). Natural heritage includes the inherited habitats, species, ecosystems, geology and landforms, including those in and under water, to which people attach value (English Heritage 2008). The United Nations Educational, Scientific and Cultural Organisation (UNESCO) also make a distinction between cultural and natural heritage. The terminology however, differs at the Council of Europe, who consider monuments, groups of buildings and sites as architectural heritage. Given these views, the built heritage can be conceptualised as being something tangible, cultural and architectural and each of these social constructions will have its own meaning and values for different groups in society.

As heritage can be socially constructed as something cultural, natural, tangible and intangible, it is easy to view these as distinct and separate elements. However, these multiple constructions of heritage are in fact more akin to a spectrum rather than mutually exclusive views. For example, the ICOMOS Charter on the Built Vernacular Heritage states that vernacular buildings fundamentally express the culture of a community and its relationship to its territory through its physical form and fabric as well as its usage and intangible associations (ICOMOS 1999a). In this social construction, the built vernacular heritage is seen as something cultural, tangible and intangible as opposed to being exclusively one type of heritage. It is also suggested that the built vernacular heritage has importance and is valued in a number of ways. While these multiple views on the importance and value of heritage will obviously lead to multiple views on how to conserve and manage heritage, it is important to firstly consider what the values are. The Department for Culture, Media and Sport (DCMS) *Heritage Protection for the 21st Century* whitepaper (DCMS (Department for Media 2007) states that designation is the first step in an effective heritage protection system, implying that before we can conserve and manage we first must understand the significance of what we are conserving and managing. Cowell (2009) also observes this increasing emphasis on the need to identify the significance of a place as the first step in management and conservation. In light of this, the values attributed to heritage will now be considered.

1.4.1 The values of heritage

A useful framework for considering the values attributable to heritage and the historic environment is offered by English Heritage (2008), which identifies four types of heritage value: evidential, historical, aesthetic and communal. As well as these heritage values, English Heritage also acknowledges that heritage can generate wider benefits and there is ample evidence of this in relation to heritage values and socioeconomic benefits.

Evidential value reflects the potential of a place to yield physical evidence of past human activity as well as past activity in the natural world and this evidence may be visible or hidden. An example is historic farm buildings, which are said to offer messages from the past about how people lived, worked, built and thought (Ball *et al.* 2006; Gaskell and Owen 2005). Historical value differs from evidential value in that it tends to be more *illustrative* or *associative* in connecting the past to the present through place and so depends more on visibility than evidential value. Vileniske (2008) suggests that the built heritage can foster the maintenance of local lifestyles and traditions and this demonstrates the associative historical value of heritage. Aesthetic value refers to the ways in which people draw sensory and intellectual stimulation from a place, such as through design and artwork. The Commission for Architecture and the Built Environment (CABE) agrees, stating that we are constantly learning how the historic environment works and that we are aided by a rich heritage of buildings, spaces and development patterns (CABE 2007). Finally, communal value, which is derived from the meanings of a place for people and how it figures in their collective experience or memory including commemorative, symbolic, social, and spiritual values. Commemorative and symbolic values reflect the meanings of a place for those who take part of their identity from it or have emotional links to it and Tweed and Sutherland (2007) acknowledge this aspect of the built heritage. Social value is associated with place as a source of identity, distinctiveness, social interaction and coherence and Gaskell and Owen (2005) argue that historic farm buildings have these associations. Spiritual value encompasses places sanctified by longstanding veneration or worship as well as the inspiration and wonder of ‘wild’ places and a study by Market and Opinion Research International (MORI) found places of worship to be important aspects of peoples’ heritage (MORI 2003).

As well as these heritage values, English Heritage also refers to the wider socioeconomic benefits of heritage. These are evident in the work of Clark (2004), who proposes that heritage is increasingly being seen as a powerful economic, social and environmental tool. Newman and McLean (1998) also support the view that heritage resources are often employed to tackle social problems and evidence of the economic benefits of heritage can be seen in the work of Rypkema as well as studies by Edwards *et al* (2005) and Courtney *et al.* (2007a). Heritage, including the built heritage, clearly has multiple values attributable to it and for the purposes of this research, it is important to understand what values are attributed to traditional rural working buildings and how this might influence discourses on the conservation and management of the buildings.

Another useful approach taken to consider the values of heritage is the Public Value (PV) approach. PV is a policy discourse which has emerged in the wider public sector to overcome the limitations of traditional value measurements that focused on inputs and outputs (Kelly *et al.* 2002). Figure 1.1 shows the model of PV generally adopted by the heritage sector which incorporates three equally important values: *intrinsic value*, *instrumental value* and *institutional value* (Clark 2006; EFTEC 2006; Holden 2004, 2006). Intrinsic value is the notion that something has value in itself and for heritage, “intrinsic values are the set of values that relate to the subjective experience of culture intellectually, emotionally and spiritually” (Holden 2006, p. 14). These values usually determine the historical significance of heritage assets. With instrumental or extrinsic value, something is beneficial not for its own sake but for the sake of something else to which it is related in some way (Zimmerman 2008). In heritage terms, this is the visitors, volunteers and wider social, economic, environmental and educational benefits at community level. Finally, institutional value relates to processes and techniques that organisations adopt in creating value for the public (Holden 2006). The most relevant values for the research are instrumental values and more specifically, the instrumental values that might be measured spatially. Instrumental values relate to the ancillary effects of heritage, where heritage is used to achieve a social or economic purpose and they are often, but not always, expressed in figures (Holden 2006). As Courtney *et al.* (2008a) note, heritage assets and activities can contribute to the generation and retention of income and employment in rural economies. Rypkema (2004) agrees, and observes that investment in historic buildings is an economic generator through: employment, household income, heritage tourism, small business incubation, regeneration in cities and small towns, neighbourhood stability and diversity. The National Trust are interested in how the use of their heritage assets, in particular redundant traditional rural working buildings, can support rural economic development and local economic growth and so the research seeks to measure the instrumental values of income generation and job creation within a spatial context.

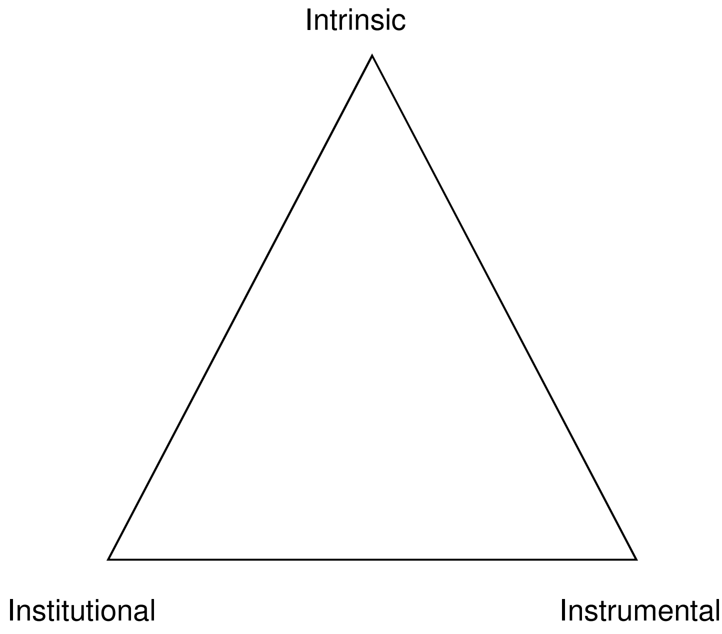

Figure 1.1: The Public Value Triangle
Source: Holden (2006)

1.5 The conceptualisation of the conservation and management of historic buildings

As Hassard (2009) notes, only since the 1970s has there been a change in emphasis from conservation strategies which focused on preserving tangible heritage to discussions taking place to safeguard intangible heritage such as cultural identity, sense of continuity and a connectedness to past. It can now be suggested that conservation principles today are the products of particular times, places and circumstances (Cowell 2009) and this links to the multiple social constructions of heritage and the associated values attributed to it. In a review of the conservation and management of the built environment, Hudson and James (2007) identified three main trends which provide a useful framework for conceptualising the conservation and management of historic buildings. These trends relate to the need to understand the significance of what is to be conserved and managed and this is regarded as an important first step in heritage management and conservation (Cowell 2009).

The first trend is the development of holistic landscape-based approaches as an alternative to the designation of specific structures or areas deemed to have special interest. This holistic approach recognises the historic element in the whole environment. An example of support for this approach is found in Dyer (2006), who argues that landscape settings of the built heritage are often forgotten when studying the built heritage. Karakul (2007) also proposes a holistic approach to conserving the historic environment, observing that there are interrelations between built heritage, the historic environment and intangible heritage values and as a result they must be treated as a whole. Karakul also suggests that these interrelations are unique for different environments, the implication being that when considering historic environments and their associated heritage values as a whole, there are still multiple values to consider when deciding how to conserve the historic environment.

The second trend that Hudson and James observe is a widening of heritage values to include particular groups and communities as well as those based on academic disciplines. This is reflective of the on-going debate over who decides what is worth conserving and the related discourses and power relations. As Tait and While (2009) observe, the conventional conservation approach, based upon the academic disciplines of architectural history and archaeology, has conceived buildings as solid objects designed by a single architect and retaining exemplar properties that are worth preserving. However, it is now argued that there is no clearly defined context of conservation and instead buildings might be conceived as multiple things with variant but persisting properties, only some of which may be worthy of conservation (Tait and While 2009). English Heritage (2006b) refer to ‘constructive conservation’ which they argue helps others to understand and to value historic places, linking the need for an understanding of the wider significance of what is being conserved and managed. However, it is noted that involvement from public bodies is not always welcome. Selman (2004) argues that whilst formal intervention from public bodies is often deserving, they alone cannot account for the conservation and management of heritage.

In parallel, communities are attempting to decide for themselves what constitutes value and thus what should be protected (Waterton 2005). Hubbard (1993) concludes that the current balance of power in conservation is shifting to include the vernacular, industrial, and folkloristic as well as high-style architecture, therefore encompassing the types of built heritage valued by the public in the survey by MORI (2003). As Ashworth and Graham (2005) argue, peoples, identities, images and purposes are too plural for a simple reduction to a simple dominant ideology that is projected from dominant producers to subordinate, passive consumers. In other words, conservation must be more inclusive of views beyond those of experts and/or those in authority. However, the inherent problem of involving multiple stakeholders in the decision-making process is the question of ‘who decides?’ It is clear that there are multiple ‘heritages’ in the fragmented British society

(Hubbard 1993) but how might we take account of this multiplicity of meanings and uses of heritage across a number of social axes? There is not a straightforward answer to this question and the debate is on-going within the heritage sector.

Hudson and James' third trend is the shift from control-based approaches towards the dynamic management of change. Problem solving for technical issues has been the traditional focus of conservation (Mason 2008) but new approaches are now being taken. For English Heritage, "places of any size from a bollard to a building, an historic area, a town or region, need to be understood and managed at different levels for different purposes" (2008, p. 14). In addition, they define conservation as "the process of managing change to a significant place in its setting in ways that will best sustain its heritage values, while recognising opportunities to reveal or reinforce those values for present and future generations" (2008, p. 71). According to Lithgow and Thackray (2009), the National Trust also sees conservation as the careful management of change and the narrative in the National Trust principles reflects the English Heritage conservation cycle, moving from understanding to action and finally to recording. However, "most non-specialists still perceive conservation to be static and akin to fossilisation" (Lithgow and Thackray 2009, p. 18).

It is important to remember that society has multiple constructions of what heritage is which will lead to multiple meanings of what it is to conserve and manage the built heritage. This is evident from Gaskell and Owen (2005), who suggest that 'significance' and 'capacity for change' in historic buildings can be subject to different interpretations, for example, gaining the socioeconomic effects of reusing historic buildings at the expense of some character loss or opting for pure character preservation. In heritage site management, there is often a strong reliance on preservation, sometimes to the exclusion of contemporary use (Grimwade and Carter 2000), but ultimately the form of management that is required to conserve a particular heritage will depend on the social construction of what that heritage means and is valued for.

According to Hudson and James (2007), it is likely that we are moving towards a period of accelerated change that will challenge the currently accepted values. The National Trust's Conservation Principles (see Appendix 1) reflect the trends which Hudson and James identify. Conservation bodies can be said to be recognising and acting upon the social constructionist view of heritage as they seek to manage heritage for the multiple and changing requirements that society has for it. As Graham (2002) states, heritage is the contemporary use of the past with meanings defined in the present, therefore the needs and demands of present societies create the heritage that we require and define the range of purposes for which it is managed. Given that society creates multiple constructions of heritage and places multiple values upon heritage, it follows that multiple approaches will exist for managing heritage. As noted by Mason (2008), built heritage conservation has transformed in the last generation from a closeted practice as an end in itself to a means to other social ends, such as creating a greater sense of place and contributing to sustainable development. In other words, conservation of the built heritage is being managed to achieve certain goals, which are determined by the values attributed to that built heritage. One example is managing the built heritage for regeneration purposes, working on the premise that a community has a local identity in the fabric of its buildings. The uses of these buildings are seen as being key to social inclusion (Stubbs 2004). Heritage has become changeable and the people that are currently making decisions will affect the future of heritage, especially in terms of what is permitted to remain and what is allowed to disappear. The significance of heritage is evaluated through different perspectives and authenticity has become one of the multiple values assigned to heritage. The National Trust's intervention does impact upon heritage but the question of whether their actions are right or wrong will depend on one's view of what heritage is. The National Trust's process of evaluating the significance of heritage reflects their own views, as do the processes employed by other organisations, such as English Heritage. For example, English Heritage has moved from viewing traditional farm buildings as 'old documents' which should be archived to viewing them as 'living buildings' (Ball *et al.* 2006) with multiple values.

Historic settlements in the countryside have their own unique traditions and values (Ruda 1998) and so a regeneration management approach to rural historic property would seek to ensure the survival of the buildings for the purpose of conserving the social structures and identity of the community (Gaskell and Owen 2005; van der Vaart 2005). The sustainability approach to conservation is another example of managing the built heritage and this involves the conversion of historic buildings for a new use (Strange and Whitney 2003). This approach values the built heritage as a historical investment in materials and energy and so the argument for re-using the building is to achieve a rational use of resources that helps to alleviate development pressure in the countryside (Ball *et al.* 2006; Vileniske 2008). The key to managing a successful conversion outcome is 'reading' historic buildings and making informed decisions about their capacity to absorb change only once the significance of a building and its landscape setting have been determined (Fuentes *et al.* 2010; Gaskell and Owen 2005).

1.6 Implications for the present study

The purpose of discussing the conceptualisation of the built heritage and of the conservation and management of historic buildings is to understand how the subjects of the present study, traditional rural working buildings, are valued by the National Trust and the implications of this for the conservation and management of the buildings. Figure 1.2 summarises the conceptualisation of the conservation and management of heritage and these stages are all evident in the National Trust's approach to the conservation and management of its heritage assets including traditional rural working buildings.

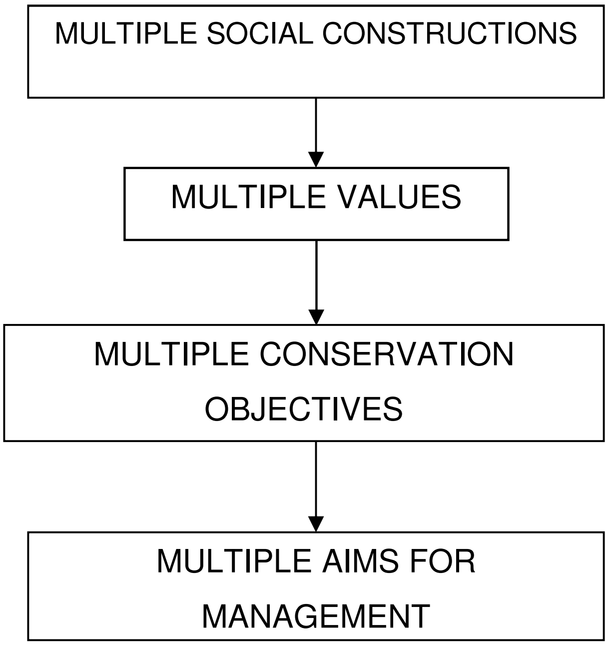

Figure 1.2 Conceptualisation of the conservation and management of heritage

As can be seen in its *Conservation Principles* the National Trust recognises that its heritage assets hold different meanings for different groups in society which in turn gives rise to multiple values being placed on the heritage assets. The National Trust aims to capture these multiple values to determine the significance of its assets and it acknowledges that this is a continuous process because the values can change and new research can add to knowledge as well as challenge preconceptions. The National Trust's initial focus on the conservation of architect-designed (polite) buildings has developed over time to incorporate vernacular traditional buildings, which has led to the need for the present research. For traditional rural working buildings, the National Trust's approach to understanding significance includes historic building surveys, landscape character assessments and archaeological surveys. These various surveys assess the significance of a building's fabric as well as its position within and contribution to the wider landscape in which it sits. An understanding of all these values allows the National Trust to assess a building's capacity for change, although they maintain that a building's capacity for change is not necessarily linked to its significance. For the National Trust, it is historic, aesthetic, landscape and environmental factors which determine the capacity for change. Given the National Trust's definition of conservation as the careful management of change, it is a building's capacity for change which determines its conversation objectives and thus the aims for its future management. For buildings that are sufficiently robust to accommodate a change of use a possible conservation objective is adaptive re-use. For buildings with a more limited capacity for change, the National Trust's conservation objective may be to preserve the building as it is or take a 'light touch' approach to adaptive re-use. Those buildings considered suitable for adaptive re-use require management decisions to be made regarding the use that they will be adapted for. It is at this stage that the National Trust can decide to include economic regeneration as one of the management aims of the adaptive re-use project. The key point about the context of the National Trust's adaptive re-use work is that adaptive re-use projects are informed and driven by the constraints of the building itself, including its wider landscape setting, rather than beginning with a development brief and trying to make the building meet it. In other words, the National Trust is first and foremost a conservation organisation rather than a development agency but when one of their buildings is considered suitable for adaptive re-use then the potential for economic regeneration is certainly something that the National Trust considers.

Traditional rural working buildings require a sustainable solution that takes them out of a dependency on financial hand-outs. They sit on a spectrum of significance, with the more historically and culturally significant ones aided through agri-environment schemes or other grants. However, they cannot all be conserved in this way. As Darley (1981) states, these buildings are a light motif in the countryside, meaning that they are ubiquitous and although not always individually significant they can have a collective significance from their overall impact upon the landscape. In other words, these buildings are by definition isolated and scattered across the countryside. This contributes to their intrinsic value but the problem is that there are too many to manage as a single group and so the market has to find solutions. This is why it is useful to be able to demonstrate the wider economic impacts of re-using the buildings that might otherwise be lost. There has been a reduction in the funding available for conservation work that focuses solely on intrinsic values. Examples of this include a reduced budget for English Heritage's work and changes to the priorities for agri-environment schemes (English Heritage 2013). The 2007 – 2013 Rural Development Programme for England had a total budget of £3.9billion, of which

£3.3billion was allocated to Axis II which dealt with environmental land management (DEFRA 2005). While the preservation of traditional farm buildings was recognised as an important objective for Natural England's environmental land management scheme (Environmental Stewardship), an aspirational budget of only £48million was allocated for the restoration of traditional buildings[1]. Attention has now turned to achieving the conservation of intrinsic values through expenditure that also generates wider (instrumental) value. Modifying and re-using traditional rural buildings would retain the historical structures (protecting the intrinsic value), encourage employment and generate income (instrumental value), with some of the latter being re-invested in further conservation work (Rural Services Network 2014). There is now an expectation that heritage protection will be balanced with the social and economic wellbeing of the local area. The intention is to achieve a 'win – win' scenario with benefits for heritage conservation and the rural economy. The aim of the Government's Rural Economy Growth Review (DEFRA 2011) is to generate income and employment in rural areas to create a vibrant and diverse rural economy. This includes making best use of built and natural heritage assets rather than just spending money to protect these assets from change. The shift in the priority for funding means that modifying traditional rural buildings for re-use is the only way to ensure their survival. The intrinsic value of traditional rural buildings, such as their place in the rural landscape, is more difficult to valorise than instrumental value like income generation and job creation. The National Trust has put much work into identifying and conserving what contributes to the intrinsic value of traditional rural buildings, which can be seen in the case studies in Chapter 5. English However, with the shift in funding priorities for heritage assets and rural areas, it is also necessary to identify the instrumental value of traditional rural buildings. The link between intrinsic value and instrumental value can be seen in English Heritage's (2006a) guide to good practice for conserving traditional farm buildings. English Heritage acknowledges that the best way to conserve these buildings is through modifying them for re-use (instrumental value) and the practice guidance explains how to achieve this while still protecting the features that contribute to the significance of the buildings (intrinsic value). The link between intrinsic value and instrumental value is that the latter can ensure the retention of the former. This study aims to explore the instrumental value arising from modifying the National Trust's traditional rural working buildings for re-use, so that an instrumental value evidence base can be developed to sit alongside the National Trust's extensive work on intrinsic value. While the National Trust is primarily a conservation

[1] The restoration of historic buildings under Higher Level Stewardship (HLS) aims to conserve and lengthen the life of buildings that contribute to the character of the landscape and are of historic interest. Any application for a building restoration is measured against how it meets the wider Environmental Stewardship Scheme objectives, including its historic or architectural interest, its contribution to the landscape character of the area, its existing or potential value for wildlife and its accessibility to the public.

organisation, it recognises that it must identify other values in its heritage assets to ensure the continuation of its conservation work.

Before moving on to review the wider literature on local and rural economic development, it is important to consider the role of planning as it forms an important backdrop to all building conversion and re-use projects through providing the legal and policy framework.

1.7 Planning considerations

The chapter now moves on to focus on the relevant planning legislation and policy for England as planning is a devolved matter in the UK. The next section will outline the operation of the English planning system at both a national and local level with particular attention being given to planning policy relevant to rural development and the conversion and re-use of traditional rural working buildings. The subsequent section will discuss planning policy from the perspective of the National Trust.

1.7.1 The English Planning System

The legal framework for the land use planning system is the *Town and Country Planning Act (1947)* which emerged from the need for post-war reconstruction. The Act nationalised development rights and all land development, except 'permitted' agricultural land-use changes, became subject to planning permission. Until the 1970s, the planning system operated at a single level (the county) and had a simple division between plan-making and development control. By the early 1970s, there was evidence of a diminished 'strategic' outlook within the system and this prompted a move to two-tier planning with a split between different tiers of local government (Gallent *et al.* 2008). The 1980s saw an anti-planning pro-market philosophy build momentum and as Gallent *et al* observe, these frictions between 'market' and 'planning' perspectives are commonplace in rural discourse, with the ascendancy of one over the other often leading to the claim that some groups are either favoured or prejudiced relative to others. Although there was still general support for the positive role of planning by the end of the 1990s, by then there was a consensus that the system was falling far short of meeting its objectives (Nadin 2006). A Planning Green Paper (DTLR 2001) outlined the problems of the existing system and proposed a programme of reform, paving the way for the *Planning and Compulsory Purchase Act (2004).* The departure from a purely 'land-use' planning model to spatial planning was viewed as a means of delivering multifunctional spaces with broad economic, social and environmental goals (Gallent and Shaw 2007). It also changed the role of the state from devising and enacting to supporting and facilitating a range of public and private bodies (Tewdwr-Jones *et al.* 2010).

In a rural context, the movement beyond a narrow focus on the built environment is critical as the land-use focus tended to limit the role of planning in integrating different policy areas and delivering the wider rural agenda (Gallent *et al.* 2008). However, despite the shift to spatial planning English planning policy is still viewed as a barrier to development in rural areas (Gallent *et al.* 2008).

In England, there is a plan-led system with a hierarchical structure of guidance and plans covering national and local planning. Although there was a regional level of planning this was revoked by the Coalition Government in July 2010 reflecting their intention to make planning a more localised activity. At the national level, the Coalition Government published the National Planning Policy Framework (NPPF) in March 2012 following consultation with Parliament and the public. The NPPF makes Local Planning Authorities (LPAs) responsible for development management, requiring them to prepare Local Plans in consultation with local communities. The NPPF introduced a presumption in favour of sustainable development which means that approval must be granted for any proposals which are in accordance with the Local Plan. Approval must also be granted for proposals when the Local Plan is absent, silent or out of date unless the proposal goes against any part of the NPPF. The intention is to speed up the planning approval process in order to facilitate sustainable growth.

The NPPF states that there are three equally necessary dimensions of sustainable development: economic, social and environmental. The economic dimension is of most relevance to this research and Section 28 of the NPPF deals with rural economic development. It states that the sustainable growth of businesses in rural areas is to be supported through the conversion of existing buildings and well-designed new buildings. Also the diversification of land-based rural businesses is to be promoted, the provision and expansion of tourist and visitor facilities is to be supported where required and the retention and development of local services and community facilities is to be promoted. The rural development rhetoric of the NPPF is in favour of rural business growth and a sustainable rural economy and the Local Plans drawn up by LPAs are required to reflect this. The other relevant part of the NPPF is the heritage part. The heritage sections, in particular Section 131, are supportive of the conversion and re-use of heritage assets and it is acknowledged that this can contribute to economic development. However, the importance of assessing and protecting the significance of heritage assets is stated and new uses are to be appropriate for the conservation requirements of heritage assets. This approach of letting the significance of the heritage asset determine the most appropriate use is in keeping with the discussion on heritage conservation and management in Section 1.5.

Another relevant aspect of the English planning system is the *Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2013*. This is the result of a consultation on the re-use of existing buildings and the regulations include permitted changes to agricultural buildings (excluding dwelling houses). A building which has been solely in agricultural use since 3rd July 2012 will not require planning permission for a change of use within use classes A1 (retail), A2 (financial services), A3 (food and drink), B1 (business), B8 (storage and distribution), C1 (hotels) and D2 (assembly and leisure). It is important to note that listed buildings are excluded from the permitted development regulations and so will still require planning applications for change of use. These new permitted development rights further emphasise the support in English planning policy for promoting rural economic development through the re-use of existing buildings.

The impact of the Coalition Government's planning policies on rural development and the adaptive re-use of buildings is largely unknown as the policies have not been in operation for long. The building conversion and re-use projects in the present research were all influenced by the planning policies of previous UK Governments but it is important to also understand how the research relates to current planning policy. As has been discussed, current planning policy supports rural development and the re-use of existing buildings. The National Trust's on-going building conversion and re-use projects remain in keeping with national planning policy.

1.7.2 The National Trust and Planning Policy

The National Trust is involved in the Planning system at both national and local levels and its engagement with the Planning system is reflected in its seven Planning Principles (Appendix 2). Principle 5 refers to Property Management Plans and for the purposes of planning in the National Trust, these plans include a reference to 'external' development issues which are affecting, or could affect, a property. The National Trust has produced a guidance note (National Trust 2003) which lists some of the more common external issues in order to help its Property Managers[2] consider what may impact on their particular properties. The guidance also advises Property Managers to be aware of current trends -

[2] Property Managers are key decision makers at the property level and their role is to ensure that all elements of their property are managed and operated in line with National Trust objectives. This includes identifying redundant buildings that could potentially be converted for re-use.

such as rural diversification, housing pressures and transport infrastructure - which will mean that some change will take place in rural areas. Property Managers are to think in terms of a ‘zone of influence’ around their property within which developments could occur and it is noted that this zone is not a single ‘line on a map’. This is a reflection of the National Trust’s acknowledgement that its land and property can be affected by planning issues beyond its land boundaries. Property Managers are advised that larger developments like roads, ports, large housing developments and commercial developments could still affect National Trust interests even if the development is occurring some distance away from National Trust property.

At the local level, the National Trust monitors Planning Application lists and assesses whether proposals could affect its property or interests. Figure 1.3 outlines the main areas of work for Land Use Planning (LUP) in the National Trust and this work is carried out by regionally-based Land Use Planning Advisers (LUPAs). The National Trust has also initiated new areas of planning work, such as seeking to define the boundaries of settings of historic assets (as referred to in national planning policy) and encouraging local authorities to adopt them.

Land Use Planning Activities in the National Trust:

- Responding to 3rd party planning applications which impact on Trust properties.
- Engaging with statutory plans prepared by LPAs.
- Applications for planning permission for new development or change of use.

Figure 1.3: Land use planning activities in the National Trust

Also of relevance is the National Trust’s position statement on rural policy (National Trust 2010b) which has four key principles for putting rural policy into action. Some of these resonate with current national planning policy and they can be viewed in Appendix 3. It is important for the context of the research to see where National Trust policy overlaps with national policy as National Trust building conversion and re-use projects must be guided by both. In particular, the similarities between National Trust policy and national planning policy are evident in the importance placed on the vitality of local communities, the desire for distinctiveness and diversity in rural areas and the interdependence of rural and urban areas.

The National Trust and the adaptive re-use of traditional rural working buildings

The Trust's LUP work in relation to adaptive re-use projects is primarily the change of use applications and any Listed Building applications. This process commonly involves discussion and negotiation with LPA officers and the National Trust will not normally seek to obtain planning permission unless the proposal is compatible with local planning policy. The National Trust commissions feasibility studies on the adaptive re-use of buildings and the brief for these studies includes the identification of the relevant local planning policies. The feasibility studies also provide a critical evaluation for sustainability outcomes, which is a series of things to consider, such as environmental, landscape and economic matters, rather than a codifying of sustainability.

The National Trust has two main guidance documents which cover adaptive re-use: *Farm Building Development: Assessing need and finding solutions* (National Trust 2006) and *Adaptive Re-use of Historic Buildings* (National Trust 2008). The various stages in the development process are outlined in Figure 1.4 and they are applicable to proposals for new buildings and for adapting existing buildings. The first stage is recognising the development need which can arise in many different ways. The National Trust identifies the main drivers for change as: environmental, assurance schemes and food safety, animal welfare, health and safety and business development. Recognising all the drivers of change and the needs at the outset will best inform the consideration of solutions. The National Trust also believes that adaptive re-use projects should be informed by the constraints of the building itself, including its setting and context, rather than being led by a development brief. The National Trust is a conservation organisation and as it defines conservation as the 'careful management of change', an important part of its adaptive re-use projects is to establish the building's capacity to absorb change. The National Trust acknowledges that a building's capacity for change is not necessarily linked to its significance but it is considered vital that future uses do not compromise the historic, aesthetic, landscape or environmental integrity of a building. In fact, the National Trust's farm building development policy states that "every effort should be made to find suitable 'rough' alternative uses, where minimal intervention is necessary, for example storage of building materials, or workshops" (National Trust 2006, p. 28). Re-use for community meeting and educational space is also considered acceptable by the National Trust, while office and residential uses are less preferable based on the argument that these uses require a higher degree of change to the building. Although the National Trust understands that residential conversion in particular is a financially lucrative option, it is the last option that they will consider. Although they want to support local regeneration through the adaptive re-use of traditional buildings, the National Trust is first and foremost a conservation organisation and so their adaptive re-use projects will prioritise conservation over maximising financial gain.

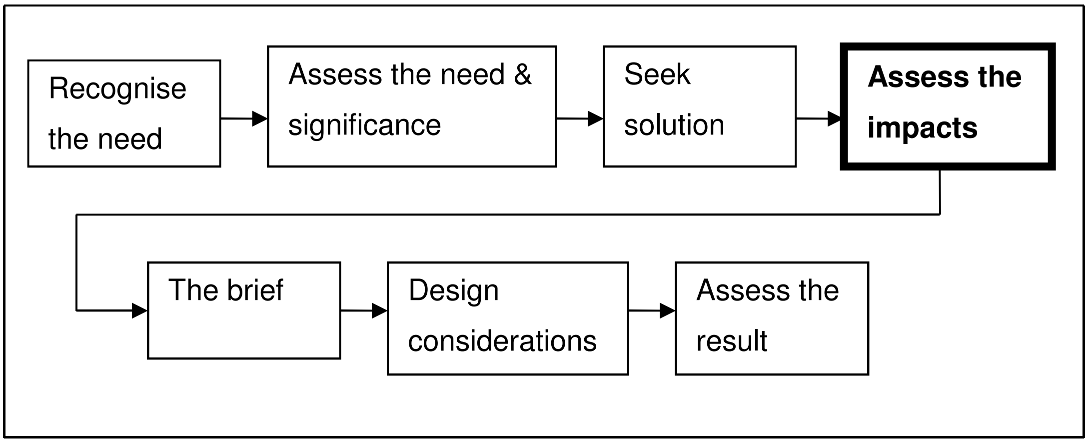

Figure 1.4: National Trust building project stages

It follows that these needs are fully assessed and in fact, the National Trust's guidelines state a presumption against any development until a needs assessment has been carried out. The needs assessment incorporates a variety of documentation such as Whole Farm Plans (WFPs), Estate and Catchment Plans and business planning. The need for an adapted rural working building is often first voiced by farm tenants. It is then assessed at the farm scale and the wider estate scale by a core project team, which includes Property Managers, Rural Surveyors, Building Surveyors and Farm Advisors. For adaptive re-use projects this is the point in the process where consideration is given to the significance of the building and the landscape. The National Trust uses Historic Building and Structures Surveys (HBSSs) to assess the origin, construction and development of the building with the intention of establishing its significance both as an individual structure and in its relationships to any neighbouring buildings and its landscape setting. The results of this survey inform the nature of any future repairs, the potential for adaptive re-use and any conservation measures required to safeguard the building's historic fabric.

Once the need and significance have been understood the initial brief is prepared to help draft a range of practical solutions. As discussed in Section 1.2, the National Trust maintains that re-use should be informed by the constraints of the building itself rather than the desires led by a development brief. With a range of new use options available, the next stage is assessing the impacts of the re-use project. The National Trust aims to consider all possible impacts of adaptive re-use on the natural, cultural and social environment. Impacts on the natural and historic environment are assessed through biological and archaeological surveys respectively. These take place at the farm scale and wider landscape scale. Environmental surveys are also conducted at farm scale and wider landscape scale to highlight any traffic and pollution issues. Social impacts are currently assessed through discussions with the owners and occupiers of neighbouring properties and Parish Councils (Parish scale impact assessment). However, as has been noted socioeconomic impacts such as the creation of new employment opportunities and new sources of income for the local economy are not quantified within the National Trust's current approach to social impact assessment.

Once the need and the acceptable solutions have been assessed, a brief is produced to outline the required work. This sets out the necessary criteria and guidance for the project team to appreciate the preferences, standards and expectations for the project. The design considerations relate to the significant features of the buildings and their surrounding landscape as identified by the HBSSs and any proposed alterations and/or additions to buildings must take account of these. The building work will then take place and the final stage is to assess what lessons have been learnt from the project to inform best practice for future projects. The National Trust has conceived a tool for this which is known as *The Building Design Guide* (BDG). The BDGs are a collection of project reports, including the lessons learnt, and they are available within the National Trust to showcase best practice.

There is clearly a need for the National Trust to understand the local economic impacts of their traditional rural working building adaptive re-use projects as part of their new localism agenda. Furthermore, a need has also been identified for guidance within the National Trust's project assessment framework to aid the assessment of the local economic impacts of these adaptive re-use projects. In turn, these local economic impacts are pertinent to rural economic development. The following chapter will consider the nature and process of rural economic development in some detail.

CHAPTER 2

RURAL ECONOMIC DEVELOPMENT AND THE LOCAL ECONOMY

2.0 Introduction

This research investigated the potential contribution of the conversion and re-use of traditional rural working buildings to rural economic development. It was therefore important to consider some of the main theories of economic growth and development to understand how they occur in a rural context, and the factors that enable them to be mobilised through practical measures. To achieve this, the chapter is divided into three main sections. The first examines some theoretical perspectives of rural economic development, with a primary focus on those constructs which are concerned with economic growth through local income and employment effects. This is followed by a section which aims to conceptualise the local economy, both as a unit of study and as backdrop to the methodological development outlined in the subsequent chapter. Finally, the chapter concludes with a discussion of the conceptualisation of the area of inquiry and the operationalisation of the research.

2.1 Theoretical perspectives of rural development

Understanding local (and regional) development requires an engagement with its most basic nature: what it is; what it is for; and what it should be. But definitions are a critically important and deceptively difficult starting point for understanding what is meant by local and regional development (Pike *et al.* 2007). Historically, local and regional development has been dominated by economic concerns such as growth, income and employment (Armstrong and Taylor 1993), and as Hudson (2007) states, the mainstream view is that the development of a regional economy is defined by growth in output, especially productivity and output per capita and this is even better if accompanied by some growth in employment. However, as Hudson acknowledges, this mainstream view pays scant attention to issues of consumption, living conditions and lifestyle and to distributional issues. Therefore, it can be said that defining development in terms of gross domestic product (GDP) and productivity in the mainstream economy squeezes out consideration of a range of social economy approaches, from ‘near market’ social enterprises to more traditional voluntary sector charities, that have the capacity to create socially useful work, producing socially useful products and services. However, within metrics other than those of the mainstream economy such activities are often proportionally of greater importance in regions, such as rural areas, that have become peripheral to the main circuits of capital accumulation and the mainstream economy.

Shifting to the rural context, van der Ploeg *et al.* (2000) state that rural development is a disputed notion and this is unsurprising given the difficulties of defining development. For van der Ploeg *et al.* (2000) the modernization paradigm that once dominated policy, practice and theory is being replaced by a new rural development paradigm, but as yet there is no comprehensive definition of rural development. They argue that rural development has a multi-level, multi-actor and multi-facetted nature in that: it implies the creation of new products and services and the associated development of new markets as well as being concerned with the reconfiguration of rural resources, it is about new things being added to established situations, it concerns the strengthening of what is already there, it supports the emergence of new sectors and it gives much importance to the actors involved.

Errington (2000) also acknowledges the economic and social aspects of rural development, linking it to the fundamental economic and social restructuring of rural areas. Errington (2000) puts emphasis on the human element, stating that “rural development refers to premeditated changes in human activity which seek to use resources within the rural arena to increase human well-being” (Errington 2000, p. 116). In other words, Errington (2000) is talking about deliberate change, which seeks to make better use of all types of rural resource in order to increase the well-being of humanity. This shows the importance of seeing rural development as much more than just GDP per capita. Furthermore, Errington (2000) states that as the concept of rural development is unpacked, a variety of different groups of people are revealed, with each having a rather different stake in the rural arena. Therefore, their well-being may be affected by particular changes in the use of rural resources in quite different ways. Such changes include the introduction of additional workspace units, new housing, new facilities and services. This point is important for the present research as the converted historic farmsteads will have a variety of uses and thus will have differing impacts on the various groups of people within the rural arena.

Given that development patterns vary significantly in rural areas, governments are increasingly recognising the need for more locally tailored or territorial approaches. As noted by the Organisation for Economic Co-operation and Development (OECD), they are also recognising that rural areas require a multi-sectoral approach as no one sector is sufficient to bring about rural development (OECD, 2006). However, this was not always the approach taken to rural development and Figure 2.1 shows Hodge and Midmore’s

(2006) outline of the evolution of rural development policy. The diagram shows that rural development has shifted over time, from being a sectoral policy to a territorial or ‘local policy’. Following the Second World War, agricultural policy was driven by the need to ensure domestic food security and the central role that agriculture had in rural economies. However, a decline in the contribution of agriculture to many rural areas meant that other economic sectors, such as the service and industrial sectors, increased their role in the rural economy. The territorial approach recognised the wider interactions within the rural economy and the importance of social as well as economic issues. The present local approach acknowledges that changes in the circumstances of rural areas indicate a higher degree of complexity and so specific development opportunities will depend on local characteristics.

Policy	**Orientation**	**Mechanism**
Agricultural Policy	Sectoral	Commodity support
	↓	↓
	Multisectoral	Diversification
	↓	↓
	Territorial	*Rural development**
	↓	↓
*Rural Policy**	*Local**	Local community development

**Italic emphasis added*

Figure 2.1: The evolution of development policy
Source: Hodge and Midmore (2006).

Hodge and Midmore’s (2006) conceptualisation of rural policy and its evolution provides a useful framework for the present research in terms of its application to policy. Most notable within this framework is the orientation towards local economic growth whereby rural development objectives can be pursued through consideration of the factors which help drive such growth through local income and employment effects.

To explore this further, the work of Terluin (2003) is drawn upon, which brings together the disciplines of regional economics and rural studies to categorise approaches to rural economic development as *exogenous*, *endogenous* and *mixed exogenous-endogenous*. Terluin (2003) observes that the debate on economic development in rural studies is especially concerned with the more organisational aspects of the rural economy, whereas the focus of the debate in regional economics tends to be more on the interplay of the production factors of capital and labour. However, Terluin (2003) also shows that the differences between both debates become smaller when the availability of capital and labour is implicitly assumed in the rural studies debate on economic development. Figure 2.2 shows the congruence in the respective debates on economic development in rural studies and regional economics and the following sections will discuss this congruence and its implications for local economic growth and development in rural areas. The main facets of exogenous and endogenous development approaches are explored further in the following two sections.

Rural Studies		**Regional Economics**
Exogenous development approach	→	Pure agglomeration models
Endogenous development approach - Community-led rural development theory - Bryden's theory on immobile resources	→	Local milieu models
Mixed exogenous/endogenous development approach	→	Territorial innovation models

Figure 2.2: Congruence in the respective debates on economic development in rural studies and regional economics

Source: Adapted from Terluin (2003).

2.1.1 Exogenous development

The main element of exogenous development models is that rural development is externally determined and transplanted into particular regions. In the field of rural studies, the exogenous approach was the dominant model up until the 1970s when these policies fell into disrepute as they did not result in sustainable economic development of rural regions (Terluin 2003). In regional economics the main exogenous development models are the traditional models and the pure agglomeration models.

Traditional models

In traditional regional economic growth models, output is assumed to be a function of the input of labour and capital. Two examples of this are *neoclassical growth theory* and *export base theory*. Neoclassical growth theory concerns the availability and interregional mobility of the production factors of capital and labour. Given identical production functions, capital will tend to move to regions where labour is abundant and cheap, whereas labour will move in the opposite direction. However, as Pike *et al* (2006b) note, the neoclassical approach is open to a number of criticisms: it makes unrealistic assumptions, factor mobility is less than perfect, access to and the availability of capital is geographically uneven, labour can form attachments to place which inhibits geographical mobility, the availability of perfect information is questionable, and it operates only in the very long run and/or in specific time periods. Despite these criticisms, the neoclassical approach is still highly influential in local and regional development (Pike *et al.* 2006b).

Export base or economic base theory works on the premise that an economy must earn additional external income in order to grow. A distinction is made between ‘basic’ activities which generate external income to enable growth and ‘non-basic’ activities which merely circulate income in an economy. Growth in the basic activities will bring more income into the region which in turn will increase the demand for non-basic goods and services within the region. The idea of the economic base has a long history and natural resource industries in particular are often associated with the notion of an economic base (Roy *et al.* 2009). The differentiation between different elements of the economic base is useful to the extent that it focuses attention on the source and nature of funding driving the economy and highlights instances such as local residents being able to give rise to non-basic economic activity if they receive extra-regional sources of income (Roberts 2003). Furthermore, the export-led growth process can be cumulative with positive multiplier effects upon regional income, an induced accelerator effect on investment, increased labour inflow and demand for local goods and services and the growth of subsidiary industries and external economies (Armstrong and Taylor 1993). However, export base theory is not without its criticisms. It is argued that a coherent theoretical framework supporting the notion of an economic base has yet to be developed and various different conceptual and methodological problems with economic base theory have been identified (Roberts 2003; Roy *et al.* 2009). Key issues include: a failure to account for the role of supply-side factors in explaining regional growth, a lack of recognition that local residential sectors can affect the long-run growth in the region, and difficulties with identifying the portion of an activity of a sector devoted to generating extra-regional income. Also, Armstrong and Taylor (1993) acknowledge that shifts in export demand, technological change and competition can cause a cumulative reversal of the process.

Applying export base theory in a rural context shows that four key trends in the nature of rural areas suggest it is likely that non-basic activity has increased as a share of a rural area's total economic base: increase in demand for rural tourism and recreation by urban residents, a net inflow of population to many rural areas over the last three decades and changes in European regional and agricultural policies bring changes in the types of income that flows into rural areas (Roberts 2003). The implication is that if non-basic or internally generated income is becoming more important for rural economic development then increasing basic or external income will not help to grow an economy as much as policy makers and planners might think. In fact, Williams (1997) argues that what is actually needed for an economy to grow is not just a rise in external income but a rise in *net income*. Net income is determined by total external income, times a multiplier and minus total external spending. Net income may be increased without increasing exports if imported goods and services can be produced locally. Therefore, it can be argued that the growth of an economy is dependent on upon the generation of external income combined with the circulation of that income in the economy to stimulate local multipliers, rather than the export base theory of economic development depending solely upon external income.

The characteristics of net income theory are reflected in a local economic development model from the New Economics Foundation called 'Plugging the Leaks', which uses an analogy of the local economy as a bucket (Ward and Lewis 2002). A full bucket means that local people have enough money to be able to buy what they need for a good quality of life, but if the bucket is leaky then to fill it money will need to be poured in at a faster rate than it is flowing out. Two strategies are identified for this: pour money in faster or slow leakage by plugging some of the leaks. In economic terms, this means focusing on attracting more money into the area and slowing the rate of leakage through local sourcing, adding value locally and by using local resources. Ward and Lewis (2002) refer to this principle of re-spending locally as the local multiplier effect and they advocate reinvigorating the local economy through examining what is imported from further afield and assessing if any of it can be supplied more locally. This notion is demonstrated in Figure 2.3, which shows spending circles, with the outside one representing whole of UK and beyond. The darker the shading the more money is spent in that area. It is argued that currently not much local spending occurs, but a local economy could be strengthened through increasing local trading and reducing what is sourced from further away.

The leaky bucket concept has been criticised as having a relatively simplistic understanding and application of Keynesian multipliers, particularly in relation to the size and complexity of local and regional economies. Also, following the theory of comparative advantage and export base theory, some would advocate less localism and more specialisation and trade in economic activities as a means of growing local and regional economies and income (Pike *et al.* 2006b). Despite these criticisms, Pike *et al.* (2006b) acknowledge that such practical and necessarily basic initiatives can be a first step in promoting broader understanding and action in the on-going challenge to localise economic activity in the context of globalisation.

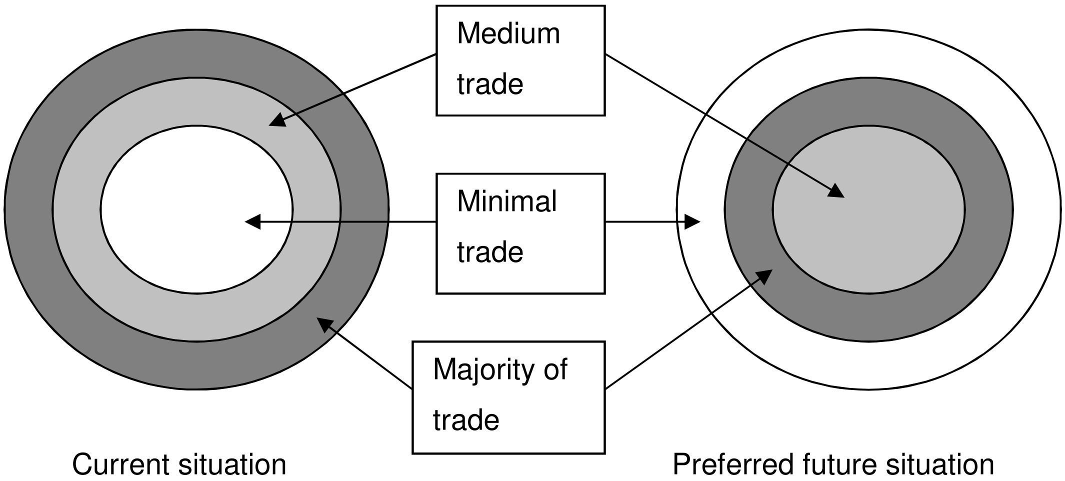

Figure 2.3: Spending circles
Source: Ward and Lewis (2002)

As Ward and Lewis (2002) state, Plugging the Leaks is not about trying to close off a community from connections with the outside world but instead it is about increasing local linkages in order to maximise the use of incoming inward investment. It is very much applicable in a rural context, although it must be acknowledged that it has been specifically designed for poorer communities, on the basis that affluent areas have less need to retain their income. The implication of the model for rural development is that the linkages between external investment and local firms and local people are what determine whether or not local people are any better off. Inward investment must be embedded with strong local linkages and ties to secure long-term growth. This holds true for other in-flows of funding such as tourism income, agricultural sales and welfare benefits.

Pure agglomeration models

In pure agglomeration models, output depends on the concentration of labour and capital in a specific location. An agglomeration of economic activities and people induces further rounds of expansion in wealthy regions as new firms are attracted by the existing concentration of economic activities, the relatively large size of the market and the diversified labour market. This is referred to as a *cumulative causation theory* and it assumes that once regional disparities come into existence, a self-reinforcing process starts and this maintains economic growth. However, this cumulative process of concentration and expansion of economic activities in wealthy regions has negative implications for the so-called ‘lagging regions’, which are deprived of labour and capital. Also, the non-expanding regions are increasingly disadvantaged as they cannot maintain a good infrastructure, a good school system or other public utilities (Pike *et al.* 2006b).

Cumulative causation requires something to kick-start the process and this is where growth pole theories become relevant. Growth pole theories link the exogenous development approach from rural studies with the pure agglomeration models from regional economics (Terluin 2003). They are based on the notion of a leading or propulsive firm, which acts as a growth pole and stimulates other industries and businesses through multiplier effects. Parr (Parr 1999a, b) offers a useful overview and critique of growth pole theories and notes their common characteristics: the use of leading firm encourages the growth of employment and population within a region at particular locations or planned points (growth poles) over some specified period, there is a definite limitation on number of locations or centres which are designed as planned growth poles, they necessarily require spatial discrimination or selectivity among locations, and they inevitably involve a modification of the spatial structure of employment and population within a region.

Much of the early writing on growth pole theories failed to distinguish between the ‘natural’ or ‘spontaneous’ growth poles and the ‘planned’ or ‘induced’ growth poles and two sources of confusion arise: the assumption that the growth poles in geographical space were a particular variant of the growth pole in economic space and the assumption that the natural growth poles in geographic space could be replicated in the form of planned growth poles (Parr 1999a). As Parr (1999a) notes, these confusions have led to unrealistic perceptions and expectations in the application of growth pole theories. Furthermore, it is also argued that growth pole theories have not been evaluated in terms of an adequate conceptual or operational framework (Parr 1999b). Much of the previous advocacy of the theories is based on the assumption that the effects of stimulating the growth pole in hinterland areas would be favourable but most previous studies have been carried out with respect to ‘economic’ space rather than ‘territorial’ space with the assumption that linkages in economic space would automatically be replicated in territorial space. As Parr (1999a) concludes, a tendency exists to see growth pole theories in one of two extreme positions: a minority view the theories as fundamentally robust and past failures should not cause future rejection. However, the more commonly held view is that whatever their virtues, growth pole theories do not properly address regional problems and it may even be harmful to long-term economic development. Parr's (1999a) opinion is that a more reasonable stance would be a neutral one, viewing growth pole theories as simply part of a range of possible economic development solutions to be judged within particular contexts. This seems to be the most appropriate response for such a controversial strategy.

In rural economic development, growth pole theories have been found behind attempts to foster alternatives to agricultural or resource-based employment through small-scale industrial development, provision of financial inducements, improved infrastructure and industrial parks, with restrictions on the number of centres at which such development is encouraged (Courtney *et al.* 2007b). The success of a planned growth pole is dependent on large Leontief-type multiplier effects (direct, indirect and induced effects) resulting from strong upstream and downstream linkages. Therefore, it is necessary to identify the locational and sectoral characteristics associated with strong local multipliers to assist resource allocation and to achieve local economic growth with associated trickle down effects. However, as noted by Lowe *et al.* (1995) and Bosworth and Atterton (2012), there is the risk of 'distorted development' if there is a mismatch between the local resources and skills and the economic activity being encouraged by the top-down policies.

2.1.2 Endogenous development

The focus of endogenous development models is development that is driven mainly by local impulses and local resources. Regional location factors link the endogenous development approach from rural studies with the local milieu models of regional economics. In regional economics, it is argued that various factors in the local milieu, such as skills of the labour force, technical and organisational know-how, and social and institutional structures affect the revenues from the input of capital and labour (Terluin 2003). In rural studies there are three main theories on development through local resources: Bryden's theory on immobile resources; creative destruction models; and community-led rural development.

Immobile Resources

Bryden's (see Bryden and Munro 2000) theory on the potential of immobile resources for creating competitive advantages in rural areas focuses on enhancing and commercialising local 'non-mobile' or 'less mobile' assets which are not open for competition, as opposed to basing development on increasingly mobile assets such as capital, skilled labour, information and other goods and services. Bryden and Munro (2000) identify immobile resources as: social capital, cultural capital, environmental capital, and local knowledge capital. He states that the economic development of rural regions depends on a combination of tangible and less tangible immobile resources and the way these interact with each other. Bryden and Munro (2000) also identify the importance of local entrepreneurship, which is able to commoditise assets such as the natural environment, cultural heritage and landscapes through creating a local identity for goods and services and exploiting niche markets. Although the entrepreneurs are mobile, Bryden and Munro (2000) argue that their entrepreneurial propensities are socially and culturally embedded, as the entrepreneurs in peripheral localities are often attracted by cultural or other attachments to the locality. However, it should be noted that the theory is not exclusively endogenous; networks within and outside the locality are also considered to be important for gaining political and financial backing. Facilitating economic development with immobile resources is therefore about creating the conditions for individual and social enterprise through investment in collective local immobile assets (social, cultural, environmental) and external networking and relations, as well as improving access to resources. Also as Bryden and Munro (2000) acknowledge, there is the issue of prospective reductions in central public transfers to peripheral areas and probable increases in the exposure of many traditional rural enterprises to global competition.

Given the current economic climate in the UK, reductions in central public transfers are certainly a hindrance to rural economic development through exploiting immobile resources. However, it is still possible that some rural areas in the UK have the potential to develop through exploiting their immobile resources in a similar manner to Skye in Bryden and Munro's (2000) case study. As Bryden and Munro (2000) state, traditional primary products of the locality, local cultural heritage and the local environment are all examples of immobile resources which could be commercialised and combined with improved communications technology and strong internal and external networks to foster rural economic development. In order to best exploit these resources, it is necessary for firms to have 'critical capabilities' such as the ability to sense opportunities and to build appropriate networks, strategic alliances and market orientation (Grande 2011)

Creative Destruction

The creative destruction model of community development (Mitchell 1998; Mitchell and de Waal 2009) addresses the commodification of the countryside ideal which has resulted in 'heritage shopping villages' like St Jacobs in Canada. The model is based on three variables: entrepreneurial investment, consumption of commodified heritage and destruction of the perceived traditional rural way of life. It originally had five stages and then a sixth stage was added as a result of follow-up work in 2009. The stages reflect the process of change in a rural community which goes from being part of a productivist landscape towards a 'neo-productivist leisure-scape', due to entrepreneurial selling and marketing which entices the post-modern consumer, who it is argued, is in search of a nostalgic return to rural roots. Entrepreneurs will then reinvest their profit in the heritage shopping-village and this may lead to a cumulative process with an increasing consumption of rural heritage and new rounds of investment ultimately overexploiting the rural heritage and destroying the perceived traditional rural way of life. Mitchell and de Waal (2009) argue that the heritage shopping-village or ‘heritage-scape’ is potentially an interim state of landscape change, which can be achieved and maintained if the discourse of preservation is dominant, thereby limiting investment. However, if the profiteers and/or promoters of growth have the loudest voice, then the authors conclude it is likely that the heritage-scape will be destroyed and will be replaced with a homogenised ‘leisure-scape’. Also, the destruction element of the model is based upon the loss of the traditional characteristics of rural life but as Mitchell and de Waal (2009) acknowledge, one cannot assume that all local residents perceive these characteristics and so not all will be opposed to its destruction. Furthermore, the authors found that the transformative process is significantly more complex than was first proposed in 1998 due to the multiple social realities within contemporary rural settings. In other words, the variety of attitudes and opinions of both new-comers and established locals in rural areas complicates the task of predicting the stages of creative destruction. The point of most interest and relevance to the present research is the role of the dominant discourse. In the context of National Trust land and property, a conservation discourse dominates and so the assumption from Mitchell and de Waal’s (2009) work is that rural areas which are dominated by National Trust estates are likely to only reach the ‘heritage-scape’ stage, as the conservation discourse will restrict the level of entrepreneurial investment.

Community-led development

There has been a move away from tackling development challenges through top-down sectoral policies to promoting development through bottom-up territorial approaches in which the human and social resources of localities are fully utilised. Area-based partnerships have been created and supported on a significant scale in advanced liberal democracies since the 1980s. While traditional modes of governing through top-down, sectoral policies still dominate European rural policy in terms of financial flows, partnership governance is increasingly accepted as an institutional means of promoting endogenous rural development (Furmankiewicz *et al.* 2010). Community-led rural development focuses on strengthening the self-help capacity of local actors. Self-development nurtures local entrepreneurial activity and often relies on local resources to create new jobs and economic activity and some communities desire such a development strategy which encourages a diversity of smaller, often home-grown firms, to avoid dependence on a single ‘footloose’ employer (Sharp *et al.* 2002).

According to Moseley (2003), the factors of partnership success are: competence and commitment of partnership staff; successful mobilisation of local knowledge about the needs and resources of the area; and decision making being exerted at the local level. However, the literature also identifies the weaknesses of the approach. Furmankiewicz *et al.* (2010) reviewed international comparative studies and presented the following common reasons for partnership failure/weakness: the exclusion of groups and individuals resulting in the absence of a cross-section of social groups, unequal and contested power relations between partners resulting in tensions and the domination of particular agencies and groups, the short-term nature of funding arrangements resulting in short-term non-strategic approaches, the instrumental use of partnerships to attract funding without commitment to its normative principles resulting in weak relations between partners, the exclusion of connected communities from partnership boundaries due to the imperative to target resources at the most deprived areas and the tendency for state agencies to maintain control through manipulating the new processes of governance.

In a rural context, it is argued that the remoteness of some rural places and a limited pool of local workers may make self-development the only practical strategy (Sharp *et al.* 2002). However, as Sharp *et al.* (2002) also note, the challenge for communities is that building social infrastructure may be a long-term process and may not necessarily be an easy one, particularly for those communities with limited resources. In other words, community-led approaches will bring about rural economic development quicker in those areas that have the necessary resources already in place and so before pursuing the approach an assessment will need to be made to establish what resources a particular locality is endowed with. However, although people may work together, there is still the need for other factors to stimulate entrepreneurial behaviour (Bosworth and Atterton 2012).

2.1.3 Mixed exogenous/endogenous development

In this approach, rural development is viewed as a complex mesh of networks, in which resources are mobilised and the process is controlled by the interplay between local and external forces. Courtney and Moseley (2008) identify the following aspects of networks as important for rural economic development: there is value in attracting skilled, educated and dynamic people from outside the area, successful local economies are those that ‘reach out’ beyond the confines of the locality for both income and knowledge, and sacrificing environmental quality (important for attracting investment, tourists and potential entrepreneurs) for short term economic gain is likely to be ultimately self-defeating. A finding of particular interest to the present research is that the ‘cultural capacity’ of rural communities (activities, events, local heritage, prevailing community attitudes and values) can either be the cornerstone of economic success or the elusive factor inhibiting successful economic development. The present research focuses on one aspect of local rural heritage, namely traditional rural working buildings, and Courtney and Moseley's (2008) work implies that such local heritage can be a key element for facilitating economic development. Courtney and Moseley (2008) argue that the effective deployment of local resources is important for rural economic development and they identify local endowments of endogenous resources which facilitate the deployment of exogenous resources: local institutional set-ups, partnerships, civic pride, effective networks, and a sympathetic marketing of local assets. Courtney and Moseley (2008) also highlight the importance of the interplay between local historical and cultural contexts as being crucial in shaping relative economic success. Furthermore, they acknowledge the importance of maintaining open economies and societies in rural areas. As the authors state, local endogenous and contextual factors are crucial but it is also vital for successful local economies to draw in resources, income and knowledge from the outside world.

For Terluin (2003), although the concept of innovation is not explicitly mentioned in the mixed exogenous/endogenous approach from rural studies, it seems to be clear that economic dynamics are derived from the interplay of local and external forces in which, amongst others, innovation is exchanged. Therefore, this approach can be related to the territorial innovation models from regional economics. Territorial innovation models, as Terluin describes, assume that apart from labour, capital and local milieu factors, the diffusion of innovations is also an important driver of growth and the emphasis on innovation implies that the technological ability to adapt to innovations is considered crucial for new types of production and entry into new markets.

However, the key element of the mixed exogenous/endogenous approach to economic development is the mix of external and internal factors and networks. Murdoch (2000) asks why there has to be a choice between exogenous and endogenous approaches to rural development and he argues that it should be expected that combinations of both will (or should) be the norm. Murdoch (2000) proposes that a new paradigm of rural development is forming around the term 'network' and he discusses 'vertical' networks in the agro-food sector, illustrating uses of the natural resource base and how these shape patterns of rural development, as well as the 'horizontal' networks which integrate non-agricultural rural economies into a set of processes straddling both urban and rural spaces. As Murdoch (2000) notes, the horizontal networks are particularly relevant to rural development, as they are concerned with new networks of innovation and learning which are considered central to any successful form of economic development. Murdoch (2000) concludes that although a concern with networks does not provide the 'answer' to the problem of rural development, it does show how new opportunities might be created by re-thinking the traditional approaches. This is a valid point for planning rural development strategies. As Murdoch (2000) argues, the network approach is useful in linking together development issues that are internal to rural areas, with problems and opportunities that are external. In other words, bringing the 'inside' and 'outside' together within a single frame of reference. However, Murdoch (2000) rightly acknowledges that each frame of reference must be matched to a particular rural development problem, meaning that the network type must be linked to the particular set of economic, social, cultural and natural conditions in given rural areas. The effectiveness of internal and external networks then, like many of the other theories and models discussed, depends on the context in which they are to be established.

Another term for this type of development is neo-endogenous development (Bosworth 2010; Lowe *et al.* 1998; Ray 2001). In neo-endogenous development, the focus is on the local area to shape its own development with the aid of knowledge and opportunities from outside the local sphere of influence (Bosworth and Farrell 2011). Hubbard and Gorton (2011) highlight the integrated network approach in neo-endogenous development, which recognises the interrelationships between economic, sociocultural and physical resources. The balance of local and extra-local forces is particularly significant for neo-endogenous development and a key component is commercial counterurbanisation (Bosworth 2010). Commercial counterurbanisation is defined as "the growth of rural economies stimulated by inward migration" (Bosworth 2010 pp. 977) and it can take the form of business creation by in-migrants, the employment of in-migrants in rural firms or the promotion of other businesses by in-migrants through local trade, knowledge exchange and co-operative working. This is demonstrated in the study by Bosworth and Gray (2012), who found that incomers to a district were more ambitious for growth and that this stimulated economic development through job creation, business growth and diversification. This is supported by the work of Kalantaridis and Bika (2011), who found that incomers demonstrated the greatest propensity to innovate and had higher levels of entrepreneurial activity than local people.

However, there are inconsistencies in the pressures of counterurbanisation, as the expectations of in-migrants influences their behaviour and in-migrants' perception of a destination will influence the likelihood of entrepreneurial in-migration (Bosworth and Willett 2011). A further interesting point from Murdoch (2000) is that overall, the importance is not in the networks themselves but in the objects and relations which flow through them. This raises the question of which objects and relations, flowing through networks, might best facilitate rural economic development. In the context of the present research, in-migrating entrepreneurs may choose to establish their businesses in converted rural buildings and Bentley and Stanford-Billington (2005) found that while there was no dominant business category, most will be engaged in some form of service provision. Although the majority of both suppliers and markets for these entrepreneurs were relatively distant, 72% of employers and 66% of employees were found to reside in the countryside. The mean commuting distance for employers was eight miles and it rose to eleven miles for employees. This demonstrates the potential local economic impact, at least in terms of employment, from the use of heritage assets.

Implications for the research design

As Terluin (2003) describes, conventional neo-classical models of economic development have been joined by a range of increasingly holistic theories that emphasise the role of agglomeration, local milieu and innovation. A number of studies have begun to test these theories in a variety of rural contexts and their findings suggest that the drivers of local economic development and performance are spread across a spectrum from exogenous models, where development is wholly driven by external resources, through to endogenous models, in which development is facilitated by local impulses and resources (Courtney and Moseley 2008). Furthermore, when Terluin (2003) applied the theoretical context to a range of empirical and Europe-wide evidence, it was concluded that the mixed exogenous/endogenous development approaches, community-led development theories and development based upon the exploitation of social and cultural capital, all related strongly to economic development and, given the availability of sufficient labour and capital, they also related strongly to a high capacity of local actors and strong internal and external networks. The implication is that there are multiple approaches to, and multiple factors for, generating strong rural economic development and it has become clear that the context of the locality is the factor that determines the most appropriate approach.

The present research was concerned with facilitating local economic growth through income and employment multipliers and in theoretical terms, the concept of facilitating regional or local economic growth through income and employment multipliers is most closely embedded in growth pole and export base theories (Courtney *et al.* 2006). As Courtney *et al.* (2006) note, in the context of economic base and growth pole theories the relative strength of upstream transactions by firms in the local economy and the corresponding size and spatial distribution of income and employment multipliers, are crucial to securing local economic growth. Therefore, the research design focused on using an LM3 approach to capture and analyse these transactions and the size and spatial distribution of their multipliers. However, it has also been seen that in the context of economic base theory, net income is actually what is crucial for economic growth. One approach to capturing this would have been to construct a model specifically for analysing net income multipliers, if the data collection permitted it. This is demonstrated in the work of Lobley *et al* (2009a), whose ‘rural development’ model factored in only income derived from sales outside the local economy as direct effects and thus provided a more realistic picture of the rural development impacts of net income theory.

2.2 The local economy

The following sections seek to examine how the local economy is defined in the context of contemporary regional economic development and the issues that these definitions may create for a spatial analysis of the rural economy in the present study. As the study aims to measure economic impact on local economies it is important to understand what is meant by the term ‘local economy’. A working definition of a local economy is necessary for determining the geographical boundaries which will represent locality in the present study. The first sub-section considers how local economies have been defined in the literature and this will include examining the notion of embeddedness, which is relevant to the concept of a local economy in a rural development context. The implications of these definitions for a spatial analysis of the rural economy will then be addressed.

2.2.1 Defining the local economy

The notion of what constitutes a local economy has proved difficult to clarify in contemporary literature and this section will consider the various definitions given. For Curran and Blackburn (1994), ‘locality’ can be defined as the local market in which firms report they are engaged in business transactions, although the authors found that this varied enormously between different kinds of enterprises. Certain sets of economic processes are more relevant to a local area than others, implying that a stronger degree of spatial variation exists between different localities, but just because economic processes are constituted in a particular place does not necessarily make them local (Courtney and Errington 2000). For example, labour markets, in an age of increasing mobility, are rarely definitive and so the range or boundaries of localities will be quite different for those who have a car than for those without a car (Courtney and Errington 2000). According to Winter and Rushbrook (2003), the difficulties of defining a ‘local economy’ are challenging because the extent to which businesses located within the boundaries of a ‘local economy’ form an integrated set of economic activities is open to question. More specifically, the argument is that conducting comparative research is difficult as the notion of locality will vary from place to place, according to contrasting economic and social geographies, thus making strict spatial definitions implausible.

Indeed as Courtney and Errington (2000) observe, there is no precise definition of a 'local economy' provided by contemporary authors.

In the context of studying a 'locality', the main question is what the relevant scale of a locality is. Scale is a fundamental concept in geography and during the past ten years, research on geographical scale has grown considerably with widespread agreement on three key principles (Born and Purcell 2006): scale is socially produced, scale is both fluid and fixed, and scale is a fundamentally relational concept. The authors argue that perhaps the most important theoretical claim is that geographical scale is socially produced and this is most evident in the literature on what is considered to be 'local' in the context of food (see for example Hinrichs (2003) and Morris and Buller (2003)). However, as Allen and Hinrichs (2007) conclude, the ambiguity of what 'local' means – a place, certain people, particular practices – allows it to be about anything and, at the margin, perhaps very little at all. This contested meaning of 'local' is further examined by Sims (2009, 2010) who argues that previous research has shown the difficulty of defining what is 'local', with academics highlighting the many different meanings that lie behind the term. Sims (2010, 2009) is writing in the context of food, but her conclusions are applicable to defining local in the context of economies. Sims (2010) states that 'local' can refer to a defined geographical area but that there is considerable disagreement over the extent of this area. This implies that there must be more to 'local' than just a physical boundary and indeed this is what Sims' (2010) evidence points to. Examples are cited of different business owners who all consider their businesses to be local, yet while some source all their supplies and labour from the immediate geographical area, others source just labour from the area. For Sims (2010), this diversity of opinion illustrates how the concept of 'local' is socially constructed according to an individual's beliefs and circumstances and therefore the concept of 'local' resists precise definition. Furthermore, it is doubtful whether any definition of 'local' could ever be based purely on physical proximity, because rightly or wrongly, 'local' is often equated with a host of values relating to social, environmental and quality criteria (Sims 2010). In other words, when individuals refer to a business as being 'local', their conceptualisation of local is not solely based upon the physical distance between themselves and that business. It has even been suggested that due to the now global nature of economic and decision-making pathways, the notion of 'local' only remains as a relic process associated with past localised production activities (see Wilson and Whitehead 2012). However, it remains that individuals have their own associations and values for what they consider to be 'local' and these will influence where an individual would mark a physical boundary to represent what is local to them.

A physical boundary to represent 'local' is necessary for a study of economic linkages and various approaches have been taken for marking boundaries. Bryden and Munro (2000) argue that although there is no definitive definition of a 'local economy', there are administrative boundaries which denote some power for institutional action and so must be an important factor. In analytical terms, it is not difficult to take some geographical area, for example a 'Travel-to-Work Area (TTWA)' or a 'local labour market area' drawn from official statistics and designate this a 'local economy' (Curran and Blackburn 1994). As Pike *et al* (2007) observe, the expression of localities, in which different kinds of economic activity may or may not be taking place, is often as territorially bounded units with particular administrative, political, social and cultural forms and identities, albeit those boundaries are continually being reworked and constructed anew at different spatial scales. Thus, the characteristics and spatial form of local economies can vary and an important point is that economic spaces rarely coincide with administrative spaces/boundaries. For example, Hyde and Midmore (2006) used data from the Annual Business Inquiry (ABI) in their study on local economies in the National Parks of Wales, but because the ABI data was not precisely mapped to the National Parks' boundaries, the authors had to test their data precision through a series of estimates.

Terms such as 'TTWA' and 'local labour market area' are common alternatives for defining a local economy in economic geography, regional studies and other approaches to spatial economic issues, but they often have little or no demonstrated foundation in real economic or social relations in the areas to which they claim to refer (Curran and Blackburn 1994). Indeed, Pike *et al* (2006a) argue that no administrative bodies have specific responsibility for TTWAs and as Curran and Blackburn (1994) note, these terms are essentially arbitrary and are imposed mainly for administrative or policy purposes. A 'local economy' defined in these conventional arbitrary terms is said to be less and less an integrated set of economic linkages and activities and, if this is the case, then the notion of the local economy ceases to be of key relevance in discussing and analysing economic activities (Curran and Blackburn 1994).

For Curran and Blackburn (1994), the debate on how to define a local economy is losing its salience and so they do not offer a solution to conceptualising local economies. Instead, they use the term 'local economic activities' to refer to relations between businesses within specific geographical or administrative boundaries and the links between such activities and social, cultural and political activities in the same areas. The important point is that the term has no presumption of an integrated local economy clearly demarcated from any wider economy. As Curran and Blackburn (1994) state, local economies, however defined, will have links direct or indirect, material or cognitive, with a wider economy, regional or national or even international and so to try to define them as a single, separate entity is a futile exercise. Based upon these arguments, Courtney and Errington (2000) conclude that a local economy can be best described as "a bounded spatial form within the web of wider economic activity where local income generation within, and leakage through, this ‘pervious’ boundary, is variable” (Courtney and Errington 2000, p. 283). Conducting research on economic linkages will require this bounded spatial form to be demarcated and the issues surrounding this process are discussed in Section 2.3.5.

Economic activity is only one element of a local economy and as Bryden and Munro (2000) state, another important factor is identification of people with place as this will indicate the kind of boundaries for internal social and commercial networks. Therefore, consideration will now be given to embeddedness, as these concept has been used in relation to social and commercial networks in local economies.

2.2.2 Embeddedness

Economic activities are only one part of the wider social relations in which people engage and economic relations in any geographically demarcated area comprise only one dimension of the relations which influence economic activities (Curran and Blackburn 1994). In other words, Curran and Blackburn (1994) observe that non-economic social relations are also aspects of the ‘local economy’, in the sense that they offer potential vehicles for economic linkages. The term ‘local economic community’ is sometimes used interchangeably with the term ‘local economy’, but it might also be taken as hinting more or less explicitly at the idea of an economy comprising of more than simply economic functions in a narrow sense (Curran and Blackburn 1994). A renewed focus on local economies extends beyond the traditional concerns with economic multipliers and there is a resurgence of interest in the importance of clusters, networks and the embeddedness of businesses and entrepreneurs (Lobley *et al.* 2009b). As Lobley *et al.* (2009b) argue, economic behaviour is no longer viewed simply in narrow economic terms, but instead the behaviour of individual businesses is viewed as being linked with the associational capacities of those controlling it.

The notion of embeddedness emphasises the necessity of social relations to all economic transactions and the tendency in rural studies is to adopt the continuum approach, with embeddedness at one end as a euphemism for market relations based on close social and interpersonal interactions and relations of loyalty (Winter 2003). Embeddedness literature, therefore, concentrates on the social components of economic action (Winter and Rushbrook 2003). Much has been written about embeddedness in the context of in-migrants to rural areas and how this exemplifies neo-endogenous development. As noted by Bosworth and Atterton (2012), in-migrants are well endowed with a range of connections through social and economic networks and rural development is truly neo-endogenous when this connectivity is embedded in local structures and external relations are positive, for example knowledge exchange. Bosworth *et al*. (2011) use the term 'symbiotic entrepreneurship' to describe entrepreneurs who are embedded in local economies and facilitate richer information flows into the local area through their external networks. In other words, these are entrepreneurs who are simultaneously tied to a locality and linked to wider economic communities. Young (2010) identified two types of embeddedness, 'selective' and 'broader' with each type related to the orientation of firms. Selective embeddedness describes the within-sector relationships that extra-locally orientated firms use for competing in distant markets. Broader embeddedness refers to locally-orientated firms which have within-sector and across-sector collaborations. For Young (2010), both types of embeddedness are important and even firms that depend on extra-local clientele and revenues will nonetheless routinely draw on local resources to gain and maintain access to these markets. As Lobley *et al.* (2009b) argue, embeddedness may aid economic efficiency as relationships based on bonds of trust and friendship can lower transaction costs. This point is important in the context of the present study as if there is strong embeddedness in a local economy then this may be a boost for local economic development.

The concept of embeddedness has been criticised in the literature and it is worth mentioning some of the main arguments against it. Krippner (2001) critiques embeddedness at the theoretical level, arguing that 'the social' is not separate from 'the market' even in hard-core instantaneous transactions: "every transaction, no matter how instantaneous, is social in the broader sense of the term: congealed into every market exchange is a history of struggle and contestation that has produced actors with certain understandings of themselves and the world that predispose them to exchange under a certain set of social rules and not another (Krippner 2001, p. 785). Separating the market from social relations leaves the hard-core of instantaneous market transacting outside the realm of economic sociology (Krippner 2001).

At the applied level, Kalantaridis and Bika (2006) question the assumption that if economic activity is typically socially embedded then it is generally taken to imply local embeddedness. Curran *et al.* (2000) also argue that one cannot assume local affiliation and intra-sectoral networking. Although this was an urban study, it has some interesting and relevant findings on connections between small businesses and the local economy. Small business owners tend to be detached from their locality and from local economic initiatives and although the lack of a strong, integrated local business community may not be the case in all parts of the UK, other research points to similar if sometimes less marked disengagement in other areas (Curran *et al.* 2000). It is important to consider the reasons why this might be happening and for Curran *et al.* (2000), the reasons vary for different sectors. For traditional small engineering firms, there was a central theme of a loss of status, influence and links with others, both socially and economically, due to the breakdown or disappearance of local business networks and subcontracting relations as people retired and firms went out of business. For business services owners, it was an "alienation of indifference" (Curran *et al.* 2000, p. 138), as several of them had only scant family and social affinities with the area plus they were negative about the local political system and their business networks were based on sector not locality. This kind of disengagement might well be happening in a rural context also, given some of the key trends in rural economic changes as outlined by Winter and Rushbrook (2003): exposure to global markets, increased levels of mobility and car ownership and the growth of dormitory settlements, and a decline in the provision of rural services such as shops, post offices and schools.

This pattern of local disengagement has implications for studying local economies and multipliers. As Curran *et al.* (2000) observe, it is difficult to find ways to meaningfully include this disparate group of people, alongside other interest groups, in local economic development planning generally. Indeed, if rural businesses are becoming less embedded in their local economy and local community then attempting to measure local economic linkages and multipliers will be challenging as there will be few local economic connections to observe. However, an important point is made by Kalantaridis and Bika (2006), who state that the debate can be moved forward through an increased emphasis upon the question of 'embeddedness to what.' Their argument is that the extent to which entrepreneurship in rural areas is a localised process depends upon the conceptualisation of what is 'local'. They state that if 'local' is geographically defined, then business owners who are born and raised locally will have the closest economic and social linkages with their immediate geographical location. On the other hand, they note that if 'local' includes relational and network proximity, rather than geographical immediacy, then the most strongly embedded businesses are those who are able to maintain strong and durable relationships with information sources well beyond defined geographical boundaries. In studies of economic linkages, 'local' is usually defined with a geographical boundary and so it must be noted that interaction with the local context within this boundary only provides a partial view of embeddedness. For example, a business which has relationships with other local economic agents and which also engages in direct marketing across the country is not strongly embedded in the context of 'local' as a defined geographical area, but the business could be said to be strongly embedded when 'local' is taken to include the proximity of business networks, which are spread across geographical boundaries. Given that the nature of embeddedness depends upon the conceptualisation of 'local' and given that 'local' is a social construction, the chosen definition of 'local' in any study of local economic linkages will determine the type of business relations that constitute strong embeddedness.

2.2.3 Issues when analysing the local economy

The descriptions of a local economy offered by Curran and Blackburn (1994) and Courtney and Errington (2000) state that although a local economy will have a bounded spatial form, the boundary is not determined by one single characteristic or measurement. In fact, as Born and Purcell (2006) and Sims (2009, 2010) note, such boundaries are arguably socially constructed, with multiple interpretations of what 'local' means. Therefore, the main challenge for spatially analysing a local economy is how to define the spatial boundary of what is 'local'. According to Pike *et al.* (2007), for several decades what was termed regional policy was in practice delivered at the sub-regional scale using TTWAs, but as Courtney and Errington (2000) note, the selection of a suitably defined boundary is likely to be a fairly arbitrary one, largely dependent on the geographical area(s) in question. In other words, it is the study objectives and characteristics of the study area(s) that in practice define what a local economy is. This flexibility in the definition is necessary in order to facilitate rigorous studies, which take account of regional and sub-regional contexts.

The notion of a local economy being defined in accordance with the objectives of a study is common in the literature. In the context of town-hinterland studies, Courtney *et al.* (2008b) state that selecting a suitably defined boundary is likely to be fairly arbitrary depending on the objectives of the study and so an administrative boundary or a given distance from town are possible examples. Sacks (2002) and Ward and Lewis (2002) also advise to make an area selection based on the study objectives, as these authors observe that expenditure levels vary greatly between the neighbourhood, borough and county. For Sacks (2002), the spatial boundary of a local economy will be determined by the area of interest, where income for that area might come from, where suppliers come from, the area that data is available for and the area that the stakeholders are interested in. Courtney *et al.* (2006), having found no conclusive definition of a local economy, took a pragmatic approach with a geographic context incorporating topography and governance, to ensure sufficient sample sizes for descriptive and statistical analysis. Curran and Blackburn (1994) denoted what was considered local with a ten mile radius and the studies by Edwards *et al* (2005) and Courtney *et al* (2007a) used three distinct geographic areas to enable respondents to identify the locations of expenditure on supplies and services. The 'local area' was the National Park boundary and then there was a wider area (five-mile buffer zone around park boundary to include principal market towns that may be considered to serve the National Park) and ‘elsewhere’ (not within local or wider area). Local Authority boundaries can also be used to define a local economy and an example can be seen in Armstrong *et al.* (1997). However, using Local Authority boundaries can also be problematic. Pike *et al.* (2006b) argue that the rather esoteric nature of many English administrative boundaries means that no set of boundaries in the hierarchy of local and regional authorities provides the basis for a consistent analysis of economic or social phenomena. The reasoning is that even the regional scale (which they consider to be the least problematic) is unsatisfactory and as an example, they argue that the current ‘standard’ regions in south east England are boundaries, which have little economic or social resonance due to their partitioning of this heavily integrated London-centred part of the country. In other words, economic spaces rarely coincide with administrative boundaries and so defining a local economy purely through administrative boundaries will fail to capture the essence of that economy. Clearly, it is advantageous to take the spatial boundary of local economies to be arbitrary, as there is then the flexibility to align with the study objectives and study area characteristics, but careful consideration must be given to how the boundary is determined.

Taking an arbitrary boundary to represent locality can certainly be advantageous when studying a single area, but issues can arise when a study seeks to compare different geographical areas. The most important factor in any comparative study is that the boundaries representing locality in different locations must be comparable, so that variations in income generation and leakage between localities can be compared on the same baseline (Winter and Rushbrook 2003). As Lobley *et al.* (2005) note, the distances travelled to access ‘local’ services will vary considerably between remote upland areas for instance, compared to urban fringe countryside and so a representation of locality is required which takes account of variances in topography, governance and accessibility. One solution to this problem has been the use of isochrones to mark the boundary of what is ‘local’. As Courtney *et al.* (2006) explain, isochrones are an attempt to move away from arbitrary boundaries, such as distance in miles or administrative boundaries, and the use of isochrones mirrors that in transport studies to account for spatial variations in land use and topography. An isochrone is a line of equal time distance and it provides a standardised boundary within which to directly compare the strength of economic linkages across contrasting areas. Courtney *et al.* (2006) used isochrones to define a boundary of 1-hour travel (drive) time from a key focal point in each of their 4 study areas and in a study on organic farming, Lobley *et al.* (2009a) selected 30 minute and 1 hour travel times from farm businesses. The usefulness of isochrones is particularly evident in the work of Mills *et al.* (2010), as the approach allowed the authors to have a consistent representation of locality that could be applied to any part of England. To help calculate indices of geographic dispersion for farm suppliers, respondents were asked to identify geographic areas from which they purchased supplies and services. An isochrone map was then produced for each farm, showing 40 and 60 minute travel times from the farm. As can be seen, the use of isochrones enables a comparison of localities and thus overcoming the issue of how to compare contrasting geographical areas. However, as Mills *et al.* (2010) note, the problem remains as to how long respondents have to drive before leaving their 'local' economy.

Some other issues and challenges for spatial analysis can be identified. In the context of embeddedness and social capital, it is suggested that businesses may well be less connected to their local economies and so there are fewer opportunities to develop non-economic relations (Curran and Blackburn 1994). The debate over the effect and existence of embeddedness and social capital at the local level is acknowledged but taking the arguments of Kalantaridis and Bika (2006) and Winter and Rushbrook (2003) for embeddedness and social capital respectively, suggests that these notions may not be confined to a territorial boundary. In other words, an arbitrary spatial boundary representing locality may not be fully capturing the social and relational elements of the economic activity of businesses within that spatial boundary.

The question is therefore how might a spatial boundary be drawn that adequately captures the economic, social and relational elements of a local economy? One solution would be to conduct a survey to ask individuals and businesses what they consider to be their local economy and to then draw the boundary based on a consensus of the responses. This would ensure that to some extent, the boundary is representative of the multiple interpretations of what is 'local', although if there are many different interpretations then the chosen boundary will not reflect all of them. Given the elusiveness of the 'local' in general, an alternative approach might be to set the boundary of 'local' in the context of the study, so that the chosen definition of local is determined by the important elements of the study context. These elements are identified by Sacks (2002) as: the area of interest, where income for that area might come from, where suppliers come from, the area that data is available for, and the area that the project stakeholders are interested in. Isochrones could then be used to mark an appropriate boundary with travel times based upon these considerations.

Whilst not all the economic, social and relational elements of the local economy may be contained within this boundary, it should still be satisfactory for the particular context. However, there is another important consideration for boundary selection which is particularly relevant for the present study. It is noted by Sacks (2002) and Mills *et al.* (2010) that when conducting a Local Multiplier 3 (LM3) study, the size of the defined study area will affect the size of the LM3 score, with a smaller area meaning a lower potential

LM3 score as most of the economic activity may take place outside the boundary. Conversely, if the boundary encapsulates a large economic space then the LM3 score may be large, indicating that most of the economic activity takes place within the boundary. As has been discussed, there is no fixed definition of 'local' and in fact, Pretty *et al.* (2005) point to the need to recognise "degrees of local-ness" (Pretty *et al.* 2005, p. 16). This demonstrates that the 'local' is context-specific and so the most appropriate boundary, in terms of LM3, should be determined by the context of the study area. For example, the boundary of the 'local' in a remote rural area will need to be fairly wide (in distance or travel time) as it is likely that 'local' businesses and services are some distance apart, whereas the 'local' for an urban fringe area will be smaller, because as Sacks (2002) notes, the urban centre can be "essentially a different world" (Sacks 2002, p. 42) to its fringe. A problem arises, however, when there is the need to compare the 'local' in such contrasting areas. To allow a fair comparison, the same boundary of 'local' is required but it may be difficult to find a boundary that is suitable for multiple contrasting areas. Should the context of the study require such comparisons then either a compromise could be made to get a single boundary that is at least workable for all areas, or multiple boundaries could be used in each area in recognition of Pretty *et al.*'s (2005) "degrees of local-ness".

It is evident then, that there are advantages and challenges arising from how researchers identify the spatial boundary of local economies. Taking the selection of a spatial boundary as being arbitrary clearly aids researchers as it allows boundaries to be drawn according to whatever criteria are most relevant to the research objectives and study area such as travel times, topography and governance. However, if local economy activity is considered to have social and relational elements, then it is possible that using an arbitrary territorial boundary may not capture all influences on local economic activity. As Winter and Rushbrook (2003) state, the notion of locality will vary from place to place according to contrasting economic and social geographies, thus making strict spatial definitions implausible. However, through taking the view that local is context-specific, it is possible to define a spatial boundary for what is considered 'local' in the context of a particular study.

2.2.4 Implications of defining the local economy for the present research

The preceding sections have examined how local economies have been defined in the literature and it appears that what constitutes 'local' is variable, as no fixed scale has been established to define what is local in all cases. In fact, as Curran and Blackburn (1994) suggest, the debate on defining what a local economy is may no longer be relevant. Their alternative notion of 'local economic activities' led Courtney and Errington (2000) to describe a local economy as a bounded spatial form within a web of wider economic activity and of particular importance is that boundary selection is not based upon a single characteristic or measurement, thereby making it arbitrary. This seems to allow for more workable definitions of local economies, although introducing a social element can complicate the definition again. This is because what might be considered as a local business may not be well integrated into the social fabric of a local economy and so it may not be local in the full economic and social sense.

The main implication for spatial analysis is that research is aided when the spatial boundary representing locality can be determined by the study area characteristics and study objectives. The literature has shown that, in fact, this is an appropriate approach to defining local because local can have multiple meanings which are context-specific. Therefore, the definition of local for the present study should be determined by the context of the study, which means considering the elements identified by Sacks (2002) for an LM3 approach: the area of interest, where income for that area might come from, where suppliers come from, the area that data is available for, and the area that the project stakeholders are interested in. In practice, this involved a discussion with the current project stakeholder, the National Trust, to determine what they consider to be 'local' in the context of their rural property. They have recently launched a new policy on localism (see National Trust (2010a)), identifying it as their strategy for the next decade, and so it was to be expected that they will have already considered what local means in practice. Whatever the National Trust's approach is, it was important that dialogue with them informed how local is defined in the research as a priori assumptions cannot be made on what local means to any individual or organisation.

The present study required a boundary of local that could be used in comparisons of contrasting geographical areas, as the National Trust's rural property holdings vary considerably in their geographical location and context. As has been discussed, arbitrary boundaries such as distance in miles or administrative areas make it difficult to compare geographic areas that differ in their topography, governance and accessibility. Therefore, the use of isochrones was necessary to allow the same boundary of what is 'local' for any particular National Trust site. This means that the spatial boundary of what is local to a particular building conversion project was defined in terms of travel time using isochrones.

Finally, it was important to consider how the boundary of what is local affects the LM3 score. The size of the study area, as well as any assumptions made, influence the range of LM3 scores. This means that the area that the National Trust considers to be 'local' could give misleading LM3 scores. For this reason, when identifying where the National Trust sources its supplies and labour, it was necessary to consider the impact of boundary on the LM3 model. Furthermore, given that LM3 boundaries are context-specific and that the National Trust sites vary in their geographic context, multiple boundaries of local were required to allow for the differences in geographic location, such as remote rural and urban fringe. For example, site A may be a 30 minute drive from local services but site B might be a 60 minute drive from its local services and so the chosen LM3 study boundary may be different for each. A compromise could be made, taking one or other figure to represent local for both contexts, but the 60 minute boundary could misleadingly increase the LM3 score for site A and conversely, the 30 minute boundary could misleadingly reduce the LM3 score for site B. Selecting multiple boundaries of local is a better approach, as each site would then have a boundary that is more representative of their proximity to local services. These issues are considered further in chapter four, which describes the methodological design in more detail.

2.3 Conceptualisation

The aim of this section is to conceptualise the area of enquiry in the context of the existing literature so that an appropriate methodology can be designed to meet the research aim and objectives. The previous sections have clarified the need for investigation and have identified the key concepts and issues relating to the original research question, but these concepts are in effect 'theories'. A conceptual model is therefore presented to clarify and synthesise the relevant literature in the context of the research aim.

2.3.1 Conceptual model

The literature review has provided a number of concepts that require clarification through targeted research. De Vaus (2002) defines concepts as abstract summaries of a whole set of behaviours, attitudes and characteristics which we see as having something in common. This is a particularly useful definition because it implies that all concepts have relationships which lead them to a common end. What is needed, as De Vaus (2002) notes, is to translate these concepts into a form in which they are measurable and this is the purpose of the conceptual model or framework. Punch (1998) states that a conceptual framework is a graphical or narrative representation of the main concepts or variables and their presumed relationship with each other and that it is usually best shown in a diagram.

In other words, the conceptual framework or model is a system of concepts, assumptions, expectations, beliefs and theories that support and inform the research.

The conceptual model is presented in Figure 2.4 and it attempts to show that instrumental value forms a link between heritage value and rural economic development. This brings rural economic development into consideration for heritage management. As was discussed in Chapter One, there are three elements that contribute to the value of heritage: intrinsic value, instrumental value and institutional value. With regards to heritage conservation, it is the intrinsic and instrumental values that inform the conservation objectives. It was explained in Chapter One that although heritage conservation objectives were traditionally influenced by the intrinsic values of heritage assets, it is now the case that heritage assets are seen to have multiple values which influence the conservation objectives. As the conservation objectives shape the management of heritage assets, it is therefore the case that the multiple heritage values will impact upon the management approach.

The conversion and re-use of functionally redundant traditional rural working buildings is a heritage management approach used by the National Trust. The conversation objectives for these buildings are shaped by both the intrinsic and the instrumental values of the buildings. The present research is concerned with one instrumental value in particular, which is the facilitation of rural economic development. This chapter has discussed the theories of rural economic development and the relevant aspects for the conversion and re-use of traditional rural working buildings have been identified. The theory is that the expenditure and employment associated with the conversion works and the re-use of the buildings will give rise to local economic multiplier effects. These multiplier effects will then drive local economic development through income generation and job creation. The economic development is considered to be neo-endogenous as it comes about through a mix of external and internal forces. The National Trust are the external influence and it is the intention that at a proportion of their expenditure on the traditional rural working buildings (examples of immobile resources) is retained and circulated within the local area to impact upon the local economy. In other words, it is expected that the local economic growth will be driven by upstream transactions between local firms and the corresponding size and spatial distribution of income and employment multipliers. The conceptual model therefore shows how rural economic development, as an instrumental value of heritage, feeds into heritage conservation objectives and heritage management.

Having produced the research framework, the next chapter will discuss the selection of a modelling technique for measuring the economic multiplier effects.

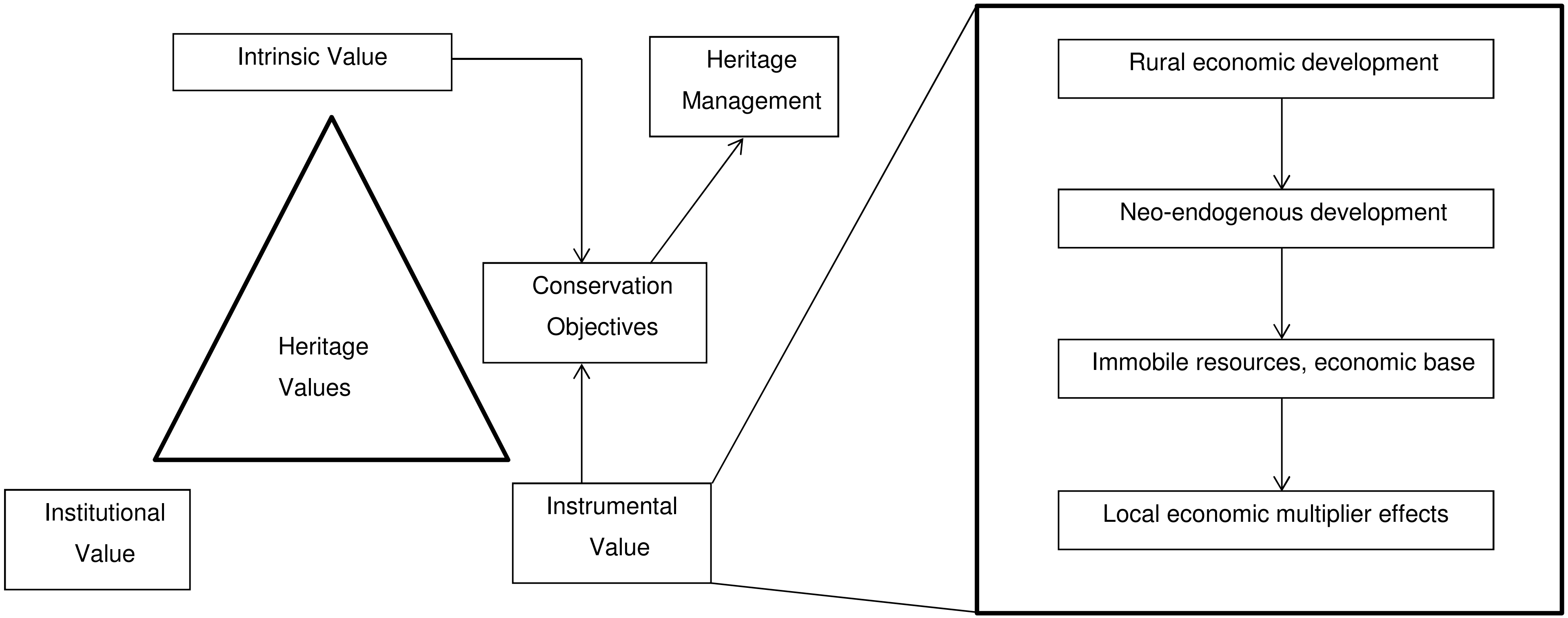

Figure 2.4: The conceptual model

CHAPTER 3

REGIONAL AND SUB-REGIONAL ECONOMIC MODELLING

3.0 Introduction

The success or failure of rural development can be judged in terms of the degree to which changes to, or stimulations of, specific production enterprises in rural areas have substantial positive backward and forward effects in those areas or exhibit a high degree of 'leakage' to other areas with local impact (Thomson 1993). In other words, it is necessary to understand and evaluate the nature of production and consumption linkages between firms in and around small localities to assess their potential role in generating local economic development (Courtney *et al.* 2008).

The present study was interested principally in the contribution of heritage assets and activities to the generation and retention of income and employment in the rural economy, with the objective of assisting the National Trust with their decision making process with respect to planning traditional rural working building conversion and re-use projects. In such applied policy discussions, as opposed to academic conceptualisation, numbers speak louder than words and only by defining classifications and relationships in rigorous terms can intervention be properly articulated, operated and assessed (Thomson 1993). This chapter will therefore discuss why an LM3 approach was chosen and this includes a review and critique of the various methods most commonly employed to model regional and sub-regional economies. The chapter begins with a review of the findings of previous studies will be discussed and then the main advantages and limitations of LM3 and other modelling approaches are identified.

Only economic impact modelling approaches are discussed as the requirement was to obtain a spatial measure of economic impacts using LM3 modelling. Approaches such as cost-benefit analysis and social return on investment (SROI) were not considered because they are more concerned with economic benefits, such as economic efficiency and social welfare, rather than economic impact. Watson *et al.* (2007) distinguish economic impact from economic benefit and as they state, an economic impact does not equate to any measure of net welfare change (economic benefit) and so an economic impact analysis is not the same as a cost-benefit analysis. Given that the purpose of the study was to measure economic impact, only suitable approaches for this were considered.

3.1 Empirical evidence of economic linkages

The following sections consider the findings of previous studies on the interactions between economic sectors in rural areas. Critical in the context of this review is the spatialisation of these economic relationships. As Winter and Rushbrook (2003) observe, the notion of economic interaction has recently attracted considerable interest beyond the narrow confines of local economic analysis, as the deepening and strengthening of local economic interactions has been seen as a prerequisite for more sustainable economic development. Furthermore, those concerned with promoting endogenous models of development have emphasised the importance of interactions which limit economic leakages from particular localities, thereby both maximising local multipliers and reducing certain externalities, such as those associated with long-distance transport (Winter and Rushbrook 2003). The present research focuses on the spatial distribution of the economic impacts arising from the conversion and re-use of traditional rural working buildings and so this section will review the empirical findings and related methodological aspects of other studies, which investigated the spatial distribution of the economic impacts of activities in rural areas. The studies were selected for review with the aim of informing and guiding the present research both empirically and methodologically. The review is divided into five sections and Appendices 4 to 8 give an overview of the studies which were chosen for review. The appendices outline how each study was conducted and so the discussion will focus on the findings and their implications for the present research.

3.1.1 Agri-environment schemes

The agri-environment studies highlight the spatial economic impacts of capital projects and so these findings are relevant for considering the spatial economic impacts of the capital works involved in the conversion works projects in the present research. Harrison-Mayfield *et al.* (1998) considered the socio-economic effects of the Countryside Stewardship (CS) scheme. The main objective of the study was to estimate the effects of the scheme upon income and labour use on-farm and upon local incomes, jobs and local communities. The net impact of the scheme on labour employed directly on the farm was found to be small but joining the CS scheme resulted in a marked increase in the use of contractors and advisors. In fact, it was estimated that around 220 Full-Time Equivalent (FTE) contractor jobs were created by CS work in 1994. Just over a quarter (27%) of respondents reported a change in household income with 60% of these indicating a positive change. The input-output modelling of indirect effects showed a small net positive employment impact with a net increase of 31 FTE farm-related jobs and it was further estimated that £5.7 million had been spent on contractors which created 448 direct, indirect and induced FTEs. The overall impact of CS tended to be positive and most apparent among small scale, specialist businesses. Agricultural contractors and suppliers of services, consultants and advisors were far more aware of CS than larger-scale suppliers of inputs and suppliers of general agricultural inputs and these smaller business owners stated that the scheme had a significant effect on their business and employment. It was also found that a significant part of increased employment from CS was related to capital works and so the implication for the present research is that agriculturally-related capital works projects have a positive economic impact on small scale, specialist businesses.

Overall, Harrison-Mayfield *et al.* (1998) felt that while the responses were broadly representative of the total CS scheme population, farmers had generally tended to underestimate the effects of the scheme, particularly where expenditure was on items not regarded as part of conventional farm production. Therefore, the economic impact of the initial expenditure, or net ‘first round’ effects, of CS may be slightly greater than was suggested by the model. In other words, the farmers generally underestimated their initial expenditure on CS and so the impact of this expenditure on the supplier firms may be underestimated. The issue of accuracy in the data collected is an important one for the present research, highlighting the fact that data should be validated and tested for error as much as possible.

The study by Edwards *et al.* (2005) is particularly relevant to the present research as it involved using an adapted LM3 model and it examined the economic impacts of restoring traditional farm buildings. The restoration projects were funded by Environmentally Sensitive Area (ESA) capital grants and so the overall aim of the study was to investigate the socio-economic impacts of these grants, but the context was situations where these grants were used for farm building restoration. Accounting for additionality and displacement the scheme led to a minimum direct injection of £3.41 million to the local economy between 1998 and 2004. Furthermore, between £8.5 million and £13.1 million was generated for the local economy of the Lake District ESA which means a minimum multiplier of 2.49. The scheme created between 25 and 30 FTE jobs in the local economy and at least half of these were due to the direct effect of the increased workload for building contractors. Around 30 contractors worked on the grant funded building restoration projects and it was observed that these businesses tended to be small, locally based and family run. They also predominantly employed local people and so a large share of indirect and induced expenditure remained in the local economy. One builder had worked on 72 ESA contracts between 1998 and 2004 and the mean number of contracts per business was 3.2 per annum. Also 8 of the 9 contractors surveyed reported at least a

16% increase in turnover. Therefore, the scheme significantly aided the viability of these businesses and the findings demonstrated that local inter-industry linkages in the study area were strong.

The study also addressed the re-use of the restored buildings and the authors found that because of the grant scheme over 90% of the restored buildings were put into some form of productive use. Furthermore, responses indicated that without the grant almost two thirds of all buildings would be in either restricted or unproductive use and the remaining third would have been repaired to a lower standard with less emphasis on preserving the traditional style. It was also found that a small number of buildings would have been demolished where it not for the ESA grant and this highlights the need for such financial assistance to ensure the survival of heritage assets such as traditional farm buildings. In the context of the present research, the National Trust will play a similar role to the ESA grants in providing the required finance (either from its own funds or through relevant grants and partnerships) and ensuring the restoration work is of a high standard. Farming operations were made more efficient for the majority of agreement holders, although only a minority reported an increased turnover. This was usually because the restored building provided additional space for agricultural activity rather than introducing a new revenue source, but more efficient farming is still a positive impact.

It was noted that residential conversions were excluded from the study, as they were not eligible for the ESA scheme and nor were projects to upgrade or convert buildings for new uses. However, the latter were covered by Defra's Rural Enterprise Scheme (RES) and a few agreement holders had used both ESA and RES grants to restore and re-use farm buildings. All four RES grant holders in the study reported a turnover increase of between 1 and 10% as a result of new commercial activities made possible by the grant. Given the small number of RES grant holders included in the study, it cannot be concluded from these findings that farm diversification is more likely to demonstrate measurable positive economic impacts, but the economic impacts of re-using traditional farm buildings for diversification is something that the present research will consider.

Following on from the study by Edwards *et al.* (2005), Courtney *et al.* (2007a) examined the social and economic impacts of grant-funded traditional farm building and drystone wall restoration in the Yorkshire Dales National Park (YDNP). The research examined six schemes, under which landowners and farmers were eligible to apply for grant funding over the period 1998-2004. The majority of agreement holders across all the schemes were farmers who operated traditional agricultural enterprises, although a significant proportion of the funding from one of the schemes (Millennium Trust) did go to non-farming land managers. The building schemes were found to generate between £4.27

million and £4.74 million for the local economy of the YDNP area and the walling schemes generated between £2.81 million and £4.38 million for the period 1998-2004. The income multipliers derived for the building and walling schemes in the YDNP are 1.65 and 1.92 respectively. The walling schemes were able to retain more income as a greater proportion of the walling contractors were locally sourced. The employment multipliers ranged between 1.25 and 1.56 for building schemes and for walling schemes they were between 1.16 and 1.20. This reflects both the significant direct employment effect of the walling schemes and the higher indirect employment effect of building schemes due to local expenditure by building contractors and their employees. Existing building contractors were shown to be able to absorb much of the additional demand for their services without recruiting additional staff. Surveyed building contractors had worked on a mean of 21 grant-funded contracts between 1998 and 2004 and walling contractors had worked on a mean of 38 grant-funded contracts in the same period. Half of the surveyed walling contractors reported an increase in turnover of at least 16% as a result of the schemes and given that many drystone wallers are sole proprietors, this figure is likely to be substantially higher in some cases.

The study was also able to ascertain that, without the grant funding, over three quarters (76%) of the traditional farm buildings would have become derelict through lack of maintenance and it is estimated that in the absence of the schemes over 350 traditional farm buildings would have become derelict. Furthermore, prior to restoration a third of the buildings were not used but after restoration this figure fell to 5%. These findings support those of Edwards *et al.* (2005) in demonstrating the importance of external funding like agri-environment grants for bringing these buildings back into productive use. Furthermore, Courtney *et al.* (2007a) observed that the main types of use were related to agriculture and the implication is that this will have a positive economic impact if the agricultural activities are shown to be strongly integrated into the local economy. Also of significance is the high indirect employment effect of the building schemes as this is a relevant measure of local economic impact for the present research.

Like the study by Harrison-Mayfield *et al*. (1998), the subject of the study by Mills *et al.* (2010) is not directly relevant to the present research, as the scheme under investigation (the Environmental Stewardship (ES) scheme in England) did not involve work on farm buildings. However, it did focus on the extent of local multiplier effects and employment creation as an indirect result of capital expenditure in rural areas and this is of relevance. Also of relevance is the methodology, as adapted LM3 models were employed and two boundaries of ‘local’ were defined using isochrones. At the national level, the derived income multipliers for all the ES schemes were 1.42 for the 40 minute drive time boundary and 1.73 for the 60 minute drive time boundary and it was found that a high percentage

(80%) of all ES expenditure by agreement holders is spent locally. The employment multipliers were 1.25 and 1.28 for all schemes in the 40 minute and 60 minute boundaries respectively and, unsurprisingly, Higher Level Stewardship (HLS) schemes generated higher employment multipliers as these schemes are more demanding and require more from contractors and suppliers. However, farms were able to absorb much of the additional workload generated by the scheme without recruiting additional staff, which means that ES was found to be more important for job retention than job creation in areas such as the uplands. Existing advisor and contractor businesses were also shown to be able to absorb much of the additional demand for services without recruiting extra staff.

Mills *et al.* (2010) note that due to the nature of ES requirements, much of the income and employment benefits are retained locally and that this appears to be a particular characteristic of agri-environment activities undertaken by the agricultural community. Their findings suggest that uptake of capital works options within HLS schemes produces the highest income and multiplier effects in the local economy and ES schemes appear to be important in retaining family members and farm employees on the farm. Furthermore, ES schemes were shown to underpin employment for some local businesses, including stone walling and hedge restoration contractors and some advisors. The implication for the present research is that because agri-environment schemes have a positive economic impact on rural communities, they should be encouraged and supported. In the context of converting and re-using traditional rural working buildings, agri-environment schemes should be used where possible to carry out the restoration work and then through diversification the converted buildings could be used as workspace for contractors and advisors involved in agri-environment scheme work.

3.1.2 Rural-urban linkages

Studies on rural-urban linkages are relevant for the present research, as they identify the characteristics of strongly integrated firm types, industries and locations. It is these characteristics that the building conversion and re-use projects should be trying to replicate in order to boost local economic integration. Roberts (1998) analysed the nature of interdependencies within and between rural and urban areas in Grampian, North East Scotland. The distinct geographical and industrial structure of Grampian (the domination of Aberdeen in terms of housing and employment) must be noted, as well as the employed definition of rural and urban: the whole of Grampian other than the City of Aberdeen district was considered rural. Overall, the results suggested that inter-regional feedback effects between the rural and urban areas were small as both ‘leak’ the positive impacts of increased industrial activity to the rest of the world. Rural households were found to have greater income-earning potential than urban households but were shown to be more dependent on inter-regional flows in the form of factor payments for their provision of labour. The rural and urban areas were found to have different ‘key sectors’, with the food processing and alcoholic drink sectors being key for the rural economy of Grampian. Rural area multiplier values ranged from 1.00 for the fertiliser and the oil and fat sectors to 2.068 for the slaughtering and meat processing sector. The implication for the present research is that re-using traditional rural working buildings for food processing and alcoholic drink production may create a more strongly integrated local economy. However, it is noted that the restrictiveness of the assumptions underpinning Roberts' model suggests that the results are best interpreted as *ex-post* indicators rather than *ex-ante* predictors of the impact of change.

Courtney and Errington (2000) developed measures of economic linkages to establish the degree to which a settlement is integrated into its locality. The study is limited by considering only first round linkages, thereby not assessing the spatial distribution of the relevant multipliers. Also, the authors acknowledge that focusing on small towns meant that the findings were influenced by the strong representation of retail consumer services in the town centres, which are likely to make a significant proportion of their sales locally. However, the study provides some useful insights into the economic activity in and around the case study towns. The ‘remote’ rural town was found to be more strongly integrated into its local economy than the ‘accessible’ town, both in terms of upstream and downstream linkages and the strength of local economic integration is shown to be a function of the economic structure of the respective localities. The authors conclude that the location of towns is a key consideration for rural development as is identifying and encouraging the types of firm that are more strongly integrated into their locality. Table 2.1 shows the development ‘mix’ identified by Courtney and Errington (2000) for the case study areas and it identifies the characteristics of the local economy that could possibly be manipulated by economic planning and development initiatives. The characteristics are divided into upstream and downstream activities and are presented in order of importance, based upon their capacity to generate local income. The implication for the present research is that the location of the converted building is potentially an important factor in determining the best re-use option, in terms of the type of business re-use that will have the most positive local economic impact.

	Kingsbridge ('remote' rural)	Olney ('accessible' rural)
Sales (Outputs)	Non-agricultural firms	Consumer service firms
	Service based firms	
	Consumer service firms	
Supplies (Inputs)	Independent local firms	Small firms

Table 3.1: Development 'mix' model to maximise local economic growth within the study areas.

Source: Courtney and Errington (2000)

Roberts (2003) employed a model based on social accounting matrices (SAMs) to quantify the relative importance of traditional and non-traditional elements of the economic base of rural areas. The empirical analysis was focused on the Western Isles (Scotland) and the distinct characteristics of this area must be remembered when considering the findings. Exports of goods and services were found to be important to the local economy, as were non-traditional sources of extraregional income (sales to tourists, factor earnings from outside the area, private and public transfers to households, and transfers from central to local government). Additional tourist demand is shown to have the greatest potential for stimulating factor income, household income and employment with export demand outperforming tourist demand only in terms of its impact on the value of the output generated in the region. This is because of the relatively high labour intensity of sectors directly involved in satisfying tourist demand. Central government funding was shown to support most of the region's professional and associate professional jobs, whereas the lower skilled jobs were more dependent on the tourist and export markets. The general implication of this is that each source of exogenous income supports a particular pattern of jobs in the region, for example in the Western Isles a change in export demand would not really affect professional jobs.

All household types were found to be more dependent on central government income than on private-transfer income and state funding of public sector activity was found to be the most important source of non-traditional extraregional income. Different types of households were found to rely on different types of income flows: retired households relied on state pensions and younger households relied on local earnings income. They also had quite different consumption patterns, as retired households were found to consume more local products and services, therefore creating greater induced effects in the economy. As Roberts (2003) notes, multipliers depend on the demographic profile of a region and on the interdependencies between the production and consumption spheres of the economy. Therefore, these are what must be taken into account when considering how the conversion and re-use of traditional rural working buildings can positively impact the local economy.

Courtney *et al* (2007b) used spatial economic data from four small English towns to measure the strength of economic integration between town and hinterland and to estimate the magnitude of town-hinterland spill-over effects. The findings suggest that where there are large multipliers in these locales, their effects tend to be contained within the zone in which they are generated. In fact, the larger multipliers observed for the hinterland firms suggests that they are more likely to generate greater local economic effects. The greater potential for firms in rural areas to stimulate the whole region compared to those in urban areas supports the findings of Roberts (1998). The SAMs identified the sectors which exhibited relatively high levels of economic integration in all of the towns within the zones in which they are located. The banking and financial services sector in particular seemed to have very strong local output and employment multipliers, as did the energy industries, chemical, plastics, rubber and glass, machinery and computing and food and drink. These findings build on Roberts (1998) in highlighting the importance of the food and farming sector to rural areas, but as Courtney *et al*. (2007b) note, it is not possible to directly compare the results from the two studies because of variations in the sectoral aggregations employed. Also, although these findings help clarify the role of specific types of service in generating multiplier effects in the local economy of these settlements, it should be remembered that the sectoral groupings examined are still an aggregation of many different types of industry and they may vary in size and function even within the same industrial type. In the hinterlands, it was found that only the agricultural industry had a relatively large impact on the town and this continued dependence of the farming industry on small towns is important as it indicates that agricultural policy may still exert an important influence on rural economies. This complements the findings of the agri-environment studies, which showed the strong positive impact of agriculture-related capital work on the local economy. In the context of the present research, this further suggests that if the converted buildings can be used to aid agricultural work, then this will potentially generate strong positive economic impacts on the rural economy.

3.1.3 Natural heritage

The present research is interested principally in the contribution of heritage assets and activities (converting and re-using traditional rural working buildings) to the generation and retention of income and employment in the rural economy, through an examination of the local economic linkages associated with the activity. The studies reviewed in this section have sought to capture the economic impacts of natural heritage assets and their associated activities. Courtney *et al.* (2006) examined the nature and strength of local economic linkages associated with natural heritage in four case study areas in Scotland, differentiated in terms of their peripherality and dependence on natural heritage. The study distinguished between three types of natural heritage activities: ‘core’ activities such as environmental management, ‘primary production and extraction’ activities, and ‘reliant’ activities where the natural heritage is highly important to a business’s commercial viability. Table 2.2 indicates the characteristics of the businesses and study areas associated with strong and weak local economic integration. While core and reliant natural heritage activities are both potential income earners through their relatively strong export base, it is the reliant activities that were more likely to generate greater *net income* (Williams 1997) in the local economy through their propensity to source locally. In fact, of all the business characteristics examined, the natural heritage ‘reliant’ sector was the only one that combined relatively strong local sourcing with relatively weak local sales.

The local income and employment multipliers were generally low with little variability between areas, which is unsurprising given the relatively small size of the economies under analysis. However, the relative positive impacts of natural heritage ‘reliant’ activities on local economic growth were highlighted. Across all areas, natural heritage activities were found to have potentially greater local economic impacts than other types of business. Along with ownership and age, workforce size proved to be an important characteristic of local integration in its own right, as small firms were found to exhibit strong ties to local markets and suppliers. Independent firms were found to sell more locally than branch firms but they were not found to source more locally. Newly established firms did not appear to reach predominantly local markets and more well-established firms were found to source more locally than newer firms. The primary sector exhibited relatively strong local upstream linkages, although there was no significant influence from the agricultural sector in terms of downstream linkages. The two accessible areas were found to support local sourcing to a greater degree than the remote study areas, but it follows that in a region with relatively low population and business density supplies will more likely have to be wider sourced due to restricted local availability and cost effectiveness.

Downstream integration (sales)	Upstream integration (Supplies)
Strong integration into locality	*Strong integration into locality*
Non NH-related activities	NH 'reliant' activities
Low NH-dependent areas	Accessible rural areas
Small firms	Small firms
Independent firms	Mature firms
Private services	Primary production
Weak integration into locality	*Weak integration into locality*
'Core' and 'reliant' NH activities	Remote rural areas
High NH-dependent areas	Large firms
Large firms	Young firms
Branches and headquarters	Manufacturing firms
	Private services

Table 3.2: Summary of significant firm characteristics associated with strong and weak local economic integration.
NH, natural heritage.
Source: Courtney *et al.* (2006)

Courtney *et al.* (2006) suggest that greater recognition should be given to the contribution of the natural environment to the economy and in particular its contribution to rural economies through underpinning those economic activities that are reliant on the actual or perceived quality of the natural heritage. The question then for the present research is whether built heritage underpins a strongly integrated local economic activity.

National Parks

Hyde and Midmore (2006) studied the economic impact of National Parks in Wales using a gravity-based input-output model. Although not as accurate as a primary survey, Hyde and Midmore (2006) argue that it is a cost-effective approach and that it is the most accurate of the non-survey approaches. The study did not examine the distinct contribution of heritage or the historic environment, but it did produce estimates of GDP contribution for each industrial sector, indicating that on average the recreation, culture and welfare sector contributed to 45.75% of GDP across the three Parks. Also, it was shown that much of the economic benefit of the Parks occurred outside their boundaries and so it is concluded that the Parks support both their local economy and the Welsh economy as a whole. The National Parks were shown to be strong attractors of tourism but they appeared weaker in capturing the associated economic activity. The authors note this issue of the Parks as an attractor, but not a receiver, of the economic activity from tourism and so perhaps the majority of the value of the Parks' environment is captured elsewhere. Also, Hyde and Midmore (2006) found it difficult to quantify the value of the environment of National Parks which is apparent elsewhere and they found it difficult to attribute some part of this value to the Parks.

Another study on National Parks is that by the Council for National Parks (2006). This was based on a survey approach and it examined the economic impact of National Parks in the Yorkshire and Humber region. There was strong evidence that businesses in the Parks and nearby towns benefited from the quality of the protected landscape and from Park designation. Survey data revealed that the Parks' businesses generated £1.8 billion in sales annually, supporting over 34,000 jobs and around £576 million of Gross Value Added. Furthermore, Park designation was found to have a major positive impact on a quarter of all surveyed businesses which were estimated to support over 8,000 jobs. Again, this study did not specifically estimate the impacts of heritage or the historic environment, but it did recognise the important contribution of cultural and natural assets to economic stimulus in and around the Parks. The implication of both studies on National Parks for the present research is whether the traditional buildings themselves contribute to economic stimulus or whether the use of any building type in that location would have produced the same economic impact.

3.1.4 Agriculture

The agricultural community remains an important part of rural communities, both socially and economically, and several studies have been conducted to assess the economic impact of agricultural activities on the local economy. As the present research incorporates the conversion and re-use of redundant agricultural buildings, which could be put back into some kind of agricultural use, it is important to consider whether agricultural activities can contribute to rural development through positive local economic impacts.

The study by Harrison (1993) examined the spatial distribution of inputs and outputs from a sample of farms in the Reading Province. Harrison (1993) found it difficult to distinguish between the retail and the production of goods and the study focused only on the first round of transactions between farms and the rest of the economy. The feed industry was found to give the highest value of produce from rural areas, with machinery and livestock second and third. The importance of the feed industry supports the findings of Roberts (1998), who found the feed industry to be the third most important key sector in the Western Isles. Harrison (1993) also observed that the smaller farms seemed to have more transactions within rural areas and that farm type also appeared to influence economic linkages, with pig and poultry farms having greater backward links with firms in rural areas. The majority of farm transactions were seen to take place within a small local radius of the farms and also with the smaller, more rural settlements. This implies that the local economic linkages of farms are strong. Furthermore, crude estimates were made of employment indirectly related to agriculture and it was found that approximately one-quarter of the people working in agricultural-related industries will be working in rural areas. Again, this is indicative of potentially strong local linkages for agriculture.

A final point of interest in Harrison's (1993) study is the issue of the viability of counting firms which have the greatest value of inputs to, or outputs from, agriculture as those with the strongest economic links. Harrison (1993) proposes that the number of transactions might be another factor, as perhaps a firm dealing with a small number of transactions with farms could be considered to be more reliant on the trade of farmers than a firm which does avery large one-off deal. Harrison (1993) concludes that there is no testable answer and so it remains a subjective opinion, but the question of what constitutes a strong linkage is still an important point to consider. Courtney and Errington (2000) note that both the number and value of transactions, as well as distance, are important when analysing the spatial distribution of economic linkages at a local level. Therefore, the strongest local linkages are both high in value and frequent in occurrence, rather than being just one or the other.

Organic farming

Organic farming is another important agricultural activity to consider as it has experienced considerable growth in recent years (Lobley *et al.* 2009b). Lobley *et al.* (2009b) investigated the generation and retention of income, purchasing patterns and direct employment impacts of a large sample of organic and non-organic farmers in England. Their results are limited by their focus on first round linkages, but they are a useful insight into the potential economic impacts of organic farms, especially as they made a comparison with non-organic enterprises. At an aggregate level, the economic connectivity of organic and non-organic farms was not dissimilar. Although the non-organic sample generated greater sales in total and spent more on purchased inputs, the mean sales figures and proportion of sales according to distance from the farm differed only marginally from organic farms. In terms of patterns of sales and purchases, there were no significant differences in the rural development potential of organic and non-organic farms. However, it was observed that organic farms employed more people and they employed a greater proportion of non-family FTEs, thereby suggesting that the employment impact of organic farming is greater.

Another interesting finding was that treating organic and non-organic farms as homogeneous sectors did not help identify rural development potential. Only by combining organic status and farm type could it be seen that organic horticultural farm businesses were amongst the most likely to operate short, local supply chains. Also their marketing orientation was distinctly more local compared to both non-organic horticultural businesses and other organic farms, suggesting that it is not organic status or farm type alone or in combination which is the most useful indicator of local economic connectivity and rural development potential. Lobley *et al.* (2009b) argue that simply comparing organic and non-organic farm businesses is too blunt an approach and that it is important to consider other factors such as the type of enterprises found on the farm and the marketing routes adopted. Therefore, the focus shifted from simplistic notions equating organic production with local supply and assuming a positive local economic impact towards a broader conception of the local agro-food economy in which some farms will have strong local connections, while others focus their efforts elsewhere and earn important export income for the local economy. The implication for the present research is that identifying the most strongly integrated farm types is not straightforward and a number of factors are important in identifying farms with strong local economic linkages, which could be further aided by bringing redundant traditional buildings back into use.

Another relevant organics study is that by Lobley *et al.* (2009a), which used an adapted LM3 model as part of a mixed methodological approach to analyse the socio-economic aspects of local and national organic farming markets. An interesting aspect of the methodology is that two model types were created: ‘aggregate’ models which used total farm sales as direct effects and the ‘rural development models’ which factored in only income from outside the local economy as direct effects. This approach enabled a more accurate assessment of how organic production might contribute to rural development, through generating external income and retaining that income in the local economy. However, it is noted that a realistic assessment of the degree to which organic production displaces other forms of activity in the local economy is impossible without undertaking similar surveys of other farm and non-agricultural sectors, although the models do go some way to accounting for displacement effects by factoring in the potential for some non-family employment to displace other jobs elsewhere in the local economy.

In terms of findings, on aggregate all organic farms in the sample were found to have income and employment multipliers which ranged from 1.66 to 1.97 and 1.28 to 1.35 respectively for a 30 minute travel time from the farm. The aggregate multipliers for a 60 minute travel time from the farm ranged from 2.13 to 2.62 and 1.36 to 1.46 for income and employment respectively. The rural development models indicated that for England and Wales as a whole, the organic sector generates a total of up to £515.6 million and up to 6,248 FTE jobs through direct, indirect and induced effects when externally derived income is considered within a 30 minute travel time of the farm. The study concluded that as a driver of rural development, the organic farming sector appeared to be fairly efficient at obtaining external income through non-local marketing and generating further income through local sourcing and employment. However, it was also noted that due to its relatively small contribution to food production, organic farming does not currently offer a broad platform for rural development and although organic production involves large numbers of small, locally embedded producers, it is more likely to be of benefit to rural economies in geographically uneven ways.

In terms of the present research, a finding of interest is that organic producers were more likely to be willing to diversify their operations, entering into innovative marketing arrangements in ways which generate more employment overall and a greater proportion of non-family labour on their farms. This is significant because redundant farm buildings could be re-used for this diversification and so organic producers could aid local economies this way.

3.1.5 Other studies

Some further studies are reviewed here which do not quite fit the previous categories, but are of relevance both methodologically and empirically. They cover a variety of subjects and the first is on rural tourism. Slee *et al.* (1997) examined the impact of different styles of tourism development on the local economy of two areas in Scotland. They employed two definitions of tourism accommodation: ‘soft’ tourism accommodation is defined as farms which offer serviced accommodation, self-catering accommodation and camping and caravan sites, and ‘hard’ tourism accommodation which refers to hotels and holiday villages.

Visitors staying at accommodation in the hard tourism sector were found to spend more than twice as much per person per day as visitors staying at accommodation in the soft sector. Spending by tourists staying in soft tourism accommodation contributed over a third more to the local economy per unit of visitor spending and for both hard and soft tourism the most significant income effect arose from the direct effect which accounted for 91% and 87% of income for soft and hard tourism respectively in the core area, and 66% and 68% in the core and extended areas together. The income multipliers were 1.10 and

1.15 for soft and hard tourism accommodation respectively in the core area and 1.52 and 1.47 respectively for the core and extended area together.

Overall, the study areas were dominated by hard tourism in terms of total economic impact which accounted for the rate of spend and the actual number of visitors in each type of tourism during the survey period. However, it is not clear whether a tourism development cycle (soft tourism transformed over time into hard tourism) is discernible. Alternatively, the authors argue that it may be possible to build tourism strategies focusing on small-scale tourism providers, enabling distinctive niche-market tourism products to be developed by collective action and institutional endeavour, so the resultant tourism industry may be more fully embedded in the local economy than the hard tourism alternative, thereby increasing the likelihood of higher levels of spillover effects to the local economy. Even though per unit of tourist spending, soft tourism outperformed hard tourism in the local and regional economy on a wide range of economic criteria, the overall effect of hard tourism was greater and thus the authors note a dilemma. Rapid development of the tourist sector is likely to be associated with external ownership and high rates of leakage from the local economy, but it is also likely to have a greater impact on the regional economy than the soft tourism alternative. Therefore, the authors argue that it is necessary to trade off the total volume of tourist spending against the positive local impacts. In the context of the present research, these findings are significant because a potential re-use of the converted buildings is the type of tourist accommodation that Slee *et al.* (1997) would define as soft tourism accommodation and the findings suggest that this soft accommodation is more locally integrated. Therefore, re-using redundant traditional rural working buildings in this manner could have a positive economic impact on the local economy, if there is a market for tourism accommodation in the area.

The study by Mills *et al.* (2000) is of interest because of its similarities to agri-environment scheme studies in assessing the impact of a rural environmental policy which can involve capital works. Mills *et al.* (2000) estimated the socio-economic impacts on the Devon economy of reaching the UK Biodiversity Action Plan's (BAP) targets for species rich hedges, assuming an expenditure of £1 million per year over a five-year period. It was conducted on a regional scale rather than a local scale but it shows how Keynesian type multiplier analysis can be used to estimate economic impacts. The overall expenditure multiplier was 1.3 and there was shown to be a strong linkage between expenditure on hedge restoration, contractors and local suppliers, but other linkages were weak. However, the indirect link between suppliers was weak as many goods, such as machinery and tools, were imported into the county, thus reducing the multiplier effect. The employment multiplier was 1.2 and the analysis found that the direct links between hedge restoration work and employment for hedge contractors was strong, as most of the jobs went to local contractors who worked within a small radius. However, the indirect links were weaker as, unlike forestry and agriculture which support significant timber and food processing industries, there was minimal processing of the hedge by-products. Overall, the analysis makes a number of assumptions and so it may be useful to examine the sensitivity of these results by varying the main assumptions and identifying the percentage change. However, the findings are another useful indication of how work related to agriculture and the natural environment can be strongly integrated into rural economies and redundant traditional rural working buildings could be re-used to support this type of work.

The role of rural households in the local economy is another point worth considering, as redundant traditional rural working buildings can be converted for residential use. Conservation organisations, such as the National Trust, are less keen on this option due to the impact on the historic fabric of the building. However, if it can be shown that rural households are strongly integrated into the local economy, then the positive economic impact of residential conversions can be argued. Roberts (2005) investigated the role played by different types of household in transmitting economic influence in the Western Isles region of Scotland. The study found that households with children were the most effective transmitters of influence within the Western Isles economy, but also households with no children featured prominently as transmitters of influence between particular production sectors, such as agriculture-to-catering. Retired households were found to be less influential, as they were constrained by their limited reliance on local factor returns as a source of income although in a previous study Roberts (2003), found that retired households consumed the most local goods and services. As Roberts (2005) concludes, rural areas with ageing populations may become less interconnected and thus less able to capture and retain benefits from increased local economic activity. Furthermore, Roberts (2005) argues that there are additional benefits from attracting or retaining younger households with children within rural areas, over and above those recognised by policy makers, and so there appears to be some economic argument for residential conversion, if targeted at young families.

The final study of interest here concerns a local food programme. Thatcher & Sharp (2008) exemplified and evaluated the use of LM3 in a study of the local economic impact of the Cornwall Food Programme (CFP), which is a localised procurement initiative. An LM3 score of 1.81 was calculated for suppliers, but unfortunately there were not enough staff responses to the survey to include them in the LM3 calculation. However, to illustrate what could have been achieved with better data, an ‘invalid’ LM3 calculation was made using the limited staff responses and this gave an LM3 score of 1.95. The supplier figures alone demonstrated that the CFP is having a considerable local economic impact and it is suggested that improving the staff spending data is likely to demonstrate even greater local impact.

An interesting methodological point arose from the authors' concerns over the accuracy of survey responses, which led them to test the reliability of the LM3 model. This echoes the concerns of Harrison-Mayfield *et al.* (1998), who also suspected inaccuracy in respondents' estimations of spending. Through testing their data, Thatcher and Sharp (2008) found that over-estimation by 10% reduced the LM3 score to 1.23, whereas over-estimation by 5% only reduced the LM3 score to 1.79. This indeed highlights the potential problem of respondent estimation but Thatcher and Sharp (2008) did not have enough data from suppliers to identify patterns which might indicate where one supplier has over-estimated spending.

Thatcher and Sharp (2008) also explored LM2, as their issues over data reliability were only relevant to the third round of spending. CFP was found to have an LM2 score of 1.52 and this was compared to the LM2 score of 1.05 for a neighbouring hospital trust. It was concluded that there are quantifiable economic gains from localising public procurement in the CFP and the comparison to another hospital trust demonstrated that local purchasing brings considerable added value for local areas. LM3 was found to be a useful indicator of how local sourcing in itself has a positive economic impact and the authors concluded that additional qualitative analysis to support and expand LM2 could identify problem areas and future opportunities. Thatcher and Sharp's (2008) study is more of methodological rather than empirical significance to the present research, although converted buildings could provide the extra storage or workspace that a farm may need to allow it to be involved in a local food supply programme.

3.1.6 Implications of previous empirical findings for the present research

Considering the empirical findings of relevant previous research identified a number of implications for the present research. Capital works projects were found to have a positive economic impact, particularly for small scale specialist businesses and the National Trust could play an important role in facilitating the conversion and re-use of traditional rural working buildings, which could then support the local economy in a similar manner to the agri-environment schemes.

The question has been raised of whether re-using the converted buildings for diversification has a greater impact on the local economy than re-using them for agricultural purposes and this is something that the present research can to contribute to answering. There is also the related question of whether more efficient farming or farm diversification has the greater effect on turnover, which in turn may go towards supporting the local economy if the farm enterprises are sourcing inputs and selling outputs locally.

It appears that building contractors can absorb the additional demand for their services, if more traditional rural building projects take place, but there is the question of whether the indirect effects are high when the contractors' workload is increased. The key sectors for a strongly integrated rural economy appear to be food processing, alcoholic drink production and agricultural activities. However, the high labour intensity of the tourism sector is noted and it is also observed that farm location contributes to the level of local integration. The organic status of the farm also plays a part in that organic farmers appear to be keener on diversifying and there is the marketing focus to consider also. In terms of rural households, demographics are important as households with young families are significant economic influences in rural areas, but retired households appear to be the greater consumers of local goods and services. Soft tourism accommodation on farms seems to be the greater contributor to the local economy, compared to the hard tourism of hotels and holiday villages. Finally, there is the question of whether it is actually traditional rural working buildings contribute to economic stimulus or whether any building could be re-used in the same way, in the same location, to generate the same economic impact.
The following sections examine the concept of the local economy in more detail, which in turn will help to clarify the scope and detail of the further issues relevant to the research.

3.2 Modelling regional and sub-regional economies

This section begins with a description of the LM3 approach, including its general strengths and weaknesses. There is then a discussion on why it was selected for use in the study. Five other approaches that could have been used are also described and their suitability is discussed as well. These other approaches are: First-round linkage analysis, Keynesian Multiplier analysis, Input-Output (I-O) models, Social Accounting Matrices (SAMs), Computable General Equilibrium (CGE) models.

3.2.1 LM3

The LM3 model is based upon a concern with the spatial understanding of economic multipliers and leakages (Lobley *et al.* 2009b). According to its developer at the New

Economics Foundation (NEF), Justin Sacks, LM3 is a multiplier tool based upon a Keynesian Multiplier model, which incorporates three rounds of spending: the source of income, the proportion of that income which is spent locally and the proportion of this locally spent income that is re-spent within the defined geographical area. As per Keynesian theory, the LM3 model assumes that an initial amount of expenditure will create a multiplier effect through consumption expenditure. The calculation of multiplier effects is a complex and lengthy business, requiring economist expertise to complete it comprehensively, which led NEF to create this simplified approach for non-economists (Thatcher and Sharp 2008). LM3 aims to capture local multiplier effects by tracing the proportion of expenditure that is spent on procuring local goods and services and it seeks to identify the local value-added in this expenditure (Potts 2008). The basic equation can be seen in Figure 3.1.

(Direct effects + Indirect effects + Induced effects)/Direct effects = LM3 score

Figure 3.1: The basic LM3 equation

The LM3 score (the multiplier), will commonly fall between 1 (indicating no local re-spend at all) and 3 (indicating that all re-spend is local). LM3 measures only the first three rounds of expenditure, as Sacks (2002) argues that most expenditure takes place in the first three rounds and that by going beyond the initial investment of round one, linkages with local firms and local people can be identified. It should be noted that each of the effects from Figure 4 do not equate to a round of expenditure. Each round of expenditure is a movement of a proportion of the original income injection, whereas the effects of that expenditure are classified according to their relationship to the firm or individual that received the initial income. For example, indirect effects can occur in both rounds two and three, as round two might be a firm receiving income from a project and then round three will be that firm paying wages to its employees. Both the income for the firm and the income for its employees are classed as indirect income effects, despite occurring in different rounds of spending.

LM3 models have been used to model the local economic effects of a variety of initiatives in a rural context. Thatcher and Sharp (2008) investigated the local economic benefits of the Cornwall Food Programme. Their three rounds of expenditure were: the total income of the hospital catering department for one financial year, the local expenditure by that catering department on supplies and staff and the local expenditure by suppliers and staff. One of the main challenges for Thatcher and Sharp (2008) was gathering a sufficient quantity of data on staff expenditure at round three. In fact, staff responses to the survey were so few that staff expenditure had to be excluded from the LM3 calculation. This led to Thatcher and Sharp (2008) exploring LM2, as their data issues only related to round three. The study serves as an example of the inherent difficulties with gathering the required data for an LM3 model.

Another useful study is that by Mills *et al.* (2010). They assessed the extent of local multiplier effects and employment creation as an indirect result of agri-environment expenditure across the whole of England, using an LM3 model to estimate local economic impacts. Their stratified sample was based on scheme type, agricultural landscape type and agreement value and data was collected via 445 face-to-face and telephone interviews with agreement holders and local businesses. 48 LM3 income and employment models were then produced. This number of models was necessary to cover all the various options and levels of agri-environment schemes. The interviews included questions to cover the effects of additionality and displacement and three different income effect multipliers were calculated: multiplier A which accounted for additionality, multiplier B which did not account for additionality, and multiplier C which was based on the total scheme injection. Calculating these different multipliers was useful as the additionality effects could be highlighted through comparing multipliers A and B. The nature of multiplier C meant that it could be applied to scheme injections beyond the study period.

Two further relevant LM3 studies are those by Edwards *et al.* (2005) and Courtney *et al.* (2007a). These studies respectively measured the socioeconomic impacts of grants for the repair of traditional farm buildings in the Lake District Environmentally Sensitive Area (ESA) and the socioeconomic impact of grant-funded traditional drystone wall and farm building restoration in the Yorkshire Dales National Park. In both cases, an adapted LM3 model was created for three spatial zones: within the ESA/National Park, the wider area, and elsewhere. The face-to-face interviews and file analysis were conducted only for completed restoration projects, as this meant all monies had been paid. The local economic impacts were estimated in terms of direct, indirect and induced effects. To avoid potential double counting between the selected measures, the analysis in both studies employed scenarios (three in Edwards *et al.* (2005) and two in Courtney *et al.* 2007a)), which used varying degrees of rigour to account for additionality and displacement. However, it is noted that not all of these effects could be accounted for. Taking examples from employment displacement, the studies could not account for increased labour demands leading to increased local wage rates that may displace employment in other sectors, nor could they be sure whether ESA/National Park residents back-filled the jobs left by those entering the construction sector. One example, in terms of additionality, is that although it is perhaps intuitive that any restoration work carried out without grant aid would be of lower quality, this cannot be assumed to be the case. Therefore, the true impact of works completed without grant funding is unknown. Despite these drawbacks, it is acknowledged that a model which is fully comprehensive in accounting for additionality and displacement would be complex. Therefore, a compromise is usually required when what can be accounted for.

A final LM3 study worth noting is that by Lobley *et al.* (2009a). They analysed the socioeconomic aspects of local and national organic farming markets in England and Wales, producing two sets of models. The 'Aggregate' models use total farm sales as the direct effects, whereas the 'Rural Development' models factored in only income derived from sales outside the local economy as direct effects. The Rural Development models are interesting because they produce a more realistic account of rural development impacts, as they are based on net income theory (see Williams (1997)). Net income theory states that the growth of an economy is dependent upon the generation of external income, combined with the circulation of that income in the economy to stimulate local multipliers. However, Lobley *et al.* (2009a) did struggle to account for additionality and displacement, as they had no equivalent data for the conventional farming sector and therefore could not estimate the additional impact of organic production, nor could they capture the displacement effect on other farm and non-agricultural sectors. It is also noted that the dataset in Lobley *et al.* (2009a) was of variable quality, as some farmers were unable to estimate or provide some data. Despite these issues, the study is commendable in its efforts to more realistically measure rural development impact.

LM3 Strengths

Whilst it is acknowledged that LM3 is not as comprehensive as I-O models or SAMs, Courtney *et al.* (2007a) argue that the benefits of LM3 are in its relative simplicity, cost efficiency and reduced reliance on complex secondary data that can be unreliable when disaggregated to required spatial levels. As Slee (2006) notes, the simplification is intended to make an esoteric approach comprehensible to local communities, which given the considerable data demands of multi-sectoral local multiplier studies, means that LM3 has considerable appeal for offering insights into local linkages while avoiding complex modelling demands. For example, LM3 can provide evidence of genuine economic gain from local purchasing policy and it highlights some of the 'leaks' and areas for possible improvement (Thatcher and Sharp 2008). Furthermore, Edwards *et al.* (2005) and Courtney *et al.* (2007a) demonstrated that LM3 is particularly suitable for estimating economic impacts at the sub-regional (local) level, providing sufficient data can be collected.

LM3 Weaknesses

The main strength of LM3 is also considered to be its greatest weakness. As it is designed with the non-economist in mind, LM3 is inherently simple. Sacks (2002) acknowledges that “LM3 is only an indicator which is not exact and is open to interpretation” (p. 20). Winter and Rushbrook (2003) observe that LM3 was not created for academic research, which this raises the question of whether it could be made more academically robust without significantly compromising its current ease of use. A further challenge here is that LM3 works on the same implicit assumption as traditional Keynesian Multiplier models, i.e. the existence of underutilised resources. While this may be true of certain categories of labour costs, it takes no account of potential substitution effects (Potts 2008). Also, as LM3 models are based on only one year’s financial records, they provide just a snapshot of the situation at one point in time, rather than accounting for variation in spending patterns over time (Thatcher and Sharp 2008). The focus on just the first three rounds also brings criticism. As Thatcher and Sharp (2008) argue, not all the impacts will be captured, and on a related note, Thatcher and Sharp (2008) state that there are flawed assumptions about what is considered local within each round. For example, they argue that some elements of utilities and supermarket transactions will remain local, whereas the NEF assumption is to exclude these transactions completely.

Data collection can be another issue with LM3 modelling. Thatcher and Sharp (2008) found that LM3 surveys were time-consuming to conduct and were intrusive for respondents. Also, the researcher cannot control the quality and accuracy of the data collected, as demonstrated by Thatcher (2004), who found much of her data to be inaccurate and contradictory. In fact, Thatcher and Sharp (2008) had so many issues with collecting data for round three, they conclude that LM2 (focusing on only rounds one and two) is a more valuable investment of time and effort. Of course, primary data collection for other regional models brings similar risks and using non-survey methods introduces its own risks of error and inaccuracy as well. A related issue to data collection is that LM3 uses only samples of populations and these samples may not be fully representative of the populations (Thatcher and Sharp 2008).

A further critique is that LM3 focuses on a single locality and the redistribution effect is not quantified beyond the target area (Potts 2008). It is especially important to consider the wider area in a rural context, as policies aiding one economically and socially disadvantaged area could be displacing activity or benefits from another area. This was the case in Thatcher and Sharp (2008), when it was found that a non-local supplier for the study target area was actually aiding a disadvantaged area elsewhere.

Despite the acknowledged weaknesses, the relative simplicity, cost efficiency and its reduced reliance on complex secondary data make the LM3 model very applicable for development into a practitioner-focused model for use in the present study.

3.2.2 The selection of LM3 as the modelling approach

The criteria for the selection was based upon the work of Thomson (1993) and West (1995), both of whom offer useful guides for selecting a quantitative technique for economic analysis. Thomson's (1993) criteria are: the degree of correspondence between reality and theoretical assumptions in mathematical relationships, practicality and the purpose of the analysis. West (1995) adds that model selection should also be influenced by the size and type of region being studied and by the type of problem being studied. CGE models were not considered against these criteria as they were already deemed unsuitable for use in the present study.

Reality versus Theoretical Assumptions

In terms of relating economic theory and reality, Thomson (1993) states that the reality of what is being studied must be 'known', because an exact fit between theory and reality cannot be expected and therefore one must understand how results may be misleading. In reality, economies are complex entities and to accurately model one will involve a high degree of complexity, in order to minimise the theoretical assumptions required. Each of the potential modelling approaches involve varying degrees of complexity and assumptions, which leads Torma (2008) to state that the models can be said to lie on a spectrum of how closely each reflects economic reality.

In the context of the present study, the 'reality' to be modelled was a rural economy, which was likely to be undergoing long-term pressures and change. It therefore had a persistent degree of disequilibrium in its resource markets. Some examples of aspects characterising the rural economy can be seen in Gallent *et al.* (2008), as they observe some general trends for rural areas in England:

- Above-average dependence on low value-added sectors such as agriculture and manufacturing.
- Income levels often lagging well behind the national average.

- Dependence in many rural; areas on low-paid, part-time and seasonal employment associated with the tourism industry.
- Rural areas tend to have a large number of micro enterprises
- Evidence shows that the disparity between rural localities and the rest of England is increasing.

As Thomson (1993) notes, the standard market-clearing equilibrium of neoclassical economic analysis may be a poor representation of this rural reality. Therefore, to effectively model a rural economy, the selected model must not assume perfect market equilibrium. Although all of the models under consideration here have underlying assumptions, none of them assume perfect market equilibrium.

Practicality

Thomson's (1993) second criterion for model selection is practicality (of use) and he states that due to the progression in computational methods, a more relevant consideration is likely to be the professional capabilities and knowledge of the analyst. One must find a balance between simplified, easy to use, models versus the more complex but theoretically appealing models. In other words, what is the marginal value of the additional components and data in the more complex models?

The economic model in the present study was to form the basis of a planning tool, for use by practitioners who have little or no economic expertise. Therefore, Social Accounting Matrix models and input-output models were unlikely to be of practical use due to their relative complexity. Also, Thomson (1993) cautions that large models tend to be a 'law unto themselves', implying that complexity is not necessarily equal to good performance. Given this, it is even more evident that the most practically useful model for the present study was LM3, or some other form of Keynesian Multiplier analysis.

Purpose of the Approach

The third selection criterion from Thomson (1993) is the purpose of the approach, which refers to stakeholder for which the analysis is being conducted. Different audiences will have different priorities, as well as varying levels of appreciation for economic theory, which leads Thomson (1993) to note that sometimes a simple technique may carry more conviction than a sophisticated one. The intended audience for the present study were decision-makers (practitioners in a rural property conservation and management context) and as Thomson states, in a decision-making context the informational content of results matters more than mere accumulation of knowledge. The National Trust practitioners have a limited appreciation of any complex economic models, which suggests that the most appropriate model for them was the LM3, given that it was developed for practical application by non-experts. Furthermore, Potts (2008) observes that LM3 does have the potential to identify the possible indirect employment effects derived from the procurement of goods and services in an economic development project, which was precisely the context of the present study.

Size and Type of Region

The irony of economic impact analysis is that the smaller (and hence simpler) the economy under investigation, the more complex the analysis is, as very small open economies have a wider array of leakage mechanisms (Armstrong et al 1997). West (1995) states that the size and type of region being studied is an important consideration for model selection and Midmore (1996) takes this further, arguing that the sophistication of the modelling approach may be increasingly justified in proportion to the scale and diversity of the economy in question. The present study analysed a rural economy at the local level and according to Midmore (1996), there is quite limited economic integration and negligible linkages related to production flows at the local level. Given this, Midmore (1996) states that neo-Keynesian local income and employment multipliers are the most appropriate for analysis at this spatial level. Furthermore, the fact that Keynesian models do not take account of price and supply constraints was not important in the context of the present study, given the ‘small country’ assumption from West (1995), which states that price and supply effects are minimal for many commodities in small area economies. An input-output model may have been feasible at the sub-regional level, but the rural context of the present study would have caused an issue with this. Producing realistic rural input-output tables is severely limited by data availability, as the time and cost of collecting the required supplementary data is prohibitive, plus the spatial disaggregation of existing data is not adequate for use with user-defined ‘rural’ regions (Harrison-Mayfield 1996).

Problem Type

West (1995) argues that there is an unfortunate tendency by some economic modellers to promote a particular type of model as being general or all purpose, but in his view models ideally should be tailor-made for the particular issue being investigated. However, he concedes that the time and cost of this would be prohibitive, which means that each model requires a compromise on what it can and cannot analyse. West (1995) offers some broad considerations for differentiating between problem types in model selection. He suggests asking the following questions of the problem: Does the problem require forecasting or impact analysis? Is the requirement to model optimisation or model ‘as is’? Are temporal effects important? Are spatial effects important? And how important is aggregation?

The present study required impact analysis on an ‘as is’ basis and the spatial effects were the most desirable result. In other words, the objective was to capture the spatial element of the multiplier effects for a particular type of project, so that when future similar projects of are being planned, the practitioners have an indication of what the spatial economic impacts might be. An optimisation model would have permitted better forecasting, as it could identify the ‘best’ solution mix of endogenous variables in response to an exogenous shock, but in the context of the present study, the complexities of such modelling were not appropriate for day-to-day practitioner use. If problem type were the only consideration, then a Social Accounting Matrix model would have been most appropriate for a strongly ‘as is’ spatial impact analysis. Although input-output models, first-round linkages, Keynesian models and LM3 do offer a spatial impact analysis, they are less comprehensive than Social Accounting Matrix models.

In summary, when considering both Thomson’s (1993) and West’s (1995) model selection criteria, the LM3 model appeared to be the most appropriate for the present study. Given the objective of developing guidance for rural practitioners, who had limited economic knowledge, the most important considerations were practicality, the purpose of the approach and the size and type of the region of study. The characteristics of the LM3 model seemed to best meet these criteria. A Social Accounting Matrix model would have offered a more realistic model and in many ways was more suited to the problem type, but given the study objective, a compromise had to be made on the realism of the model in favour of practicality of use. Important modelling considerations such as additionality and displacement could accounted for to some degree in an LM3 study (see for example Edwards *et al.* (2005)), but to make LM3 more complex through incorporating more ‘elements of reality’ could detract from its ease of use by non-experts. Winter and Rushbrook (2003) note that LM3 analysis only reveals associations, unless other variables and/or counterfactuals are considered, meaning that some methodological improvement was required, even if overall the analysis remained relatively simplistic. Ideally, an adapted LM3 model was required, which incorporated some formal elements from Keynesian Multiplier analysis and if possible from Social Accounting Matrix models. In light of this, Chapter four describes how LM3 was adapted and used as a basis for the methodology in the present study. The remainder of this section describes the other modelling approaches that could have been used.

3.2.3 First-Round Linkages

Analyses of first-round linkages focus on measuring the impact of the first round of transactions in a local economy. Through this analysis, one can identify the characteristics which appear to influence the degree of local economic integration such as sectoral, organisational and locational characteristics (Courtney *et al.* 2008b). Useful definitions of economic linkages and transactions can be found in Courtney and Errington (2000): economic linkages are a “network of transactions of varying nature which either contribute to the income generation within, or leakage from, the ‘local economy’” (p. 282) and a transaction is any form of economic linkage with three distinct but interrelated elements (the number of transactions occurring, the value of the transactions and a spatial element, measured in terms of either distance or time). Furthermore, transactions can be: inputs (purchases of goods and services), outputs (sales of producer and consumer goods and services) and the purchase of labour (Courtney and Errington 2000). The analysis of production and sales linkages within an economy provides a method of exploring the extent to which businesses of different types are connected to that economy (Lobley et al. 2009b). Production linkages can be backward/up-stream (inputs to final demand) and forward/down-stream (output of an industry as a supplier to other industries) and expenditure linkages are consumption (household) and investment (used to finance activities).

There are a number of ways to analyse these linkages. Curran and Blackburn (1994) focused on the proportions of sales and purchases by businesses within certain localities and Harrison (1993) extended the approach to include the monetary values of sales and purchases. Harrison’s (1993) study of farms in the Reading Province is focused at the individual farm level to analyse the spatial distribution of the farms’ inputs and outputs across rural and urban areas. Forward and backward linkages were examined, but income effects were not incorporated as household expenditure was omitted. One of the most interesting and useful methodological outcomes of the study was the development of a spatial tracking technique to measure the distance that each transaction occurred from the farm.

Another example of first-round linkage analysis is the study of two small English towns by Courtney and Errington (2000), which sought to establish the degree to which a settlement is integrated into its locality. They tested sixteen hypotheses to establish which types of firm and household were more strongly linked to the local economy. Self-completion postal questionnaires were validated by visiting a sample of respondents to check invoices and receipts, which were analysed spatially using Harrison’s (1993) spatial tracking technique. The level of economic integration to locality was measured through analysing the absolute proportion of sales revenue and corporate expenditure attributable to the locality. The mean proportions of revenue and expenditure were then calculated to allow statistical testing. Further bi-variate analysis was implemented to examine the factors that might account for aggregate local economic integration between the two case study towns. The methodology has resulted in valid and reliable measures of economic integration to locality.

A slightly different example is the study by Mitchell *et al.* (2005), who used the mean distributions of low and high order spend, rather than actual transaction values, to examine the ‘economic footprint’ of households in four Scottish towns. The study employed distance decay analysis, which examined the correlation coefficients between the proportion of expenditure taking place in each town and the travel time from place of residence to the town centre. Ordinary Least Squares regression analysis was then used to identify the key characteristics of towns and households associated with strong local integration. Overall, the study is a good demonstration of first-round linkage analysis without using actual transaction values, which is useful for instances when researchers find that participants are reluctant to disclose such sensitive financial information.

A further development in first-round linkage studies has been to incorporate social linkages as they arguably contribute to rural development as well as economic linkages. Lobley *et al.* (2009b) sought to capture a number of economic and social indicators at farm level to compare the rural development benefits of organic and conventional farms in England. The use of self-completion postal questionnaires limited the depth and complexity of economic information that could be collected, thereby limiting the economic analysis to first-round transactions, but the socioeconomic hybrid approach is a contrast to the more conventional economic impact studies. The economic analysis focused on the purchases and sales related to the farm businesses, but labour values were captured separately through salary rates and household purchases were excluded. Actual transaction values were used and the analysis examined the proportion of transactions, by value, that were conducted locally, regionally, nationally and internationally. Like previous first-round linkage studies conducted at the individual business level, Lobley *et al.* (2009b) were able to successfully distinguish between two different scenarios: businesses that are ‘highly connected’ in terms of their proportion of local transactions but which have a relatively small development impact (due to the low value of those transactions) and businesses associated with a greater local development impact even though they are orientated towards more distant markets.

First-round Linkages Strengths

Collecting primary data for first-round linkages analysis involves only the expenditure and labour from the first round of spending. Therefore, it is less demanding than other approaches, which require data to be collected or estimated for subsequent rounds of spending. Furthermore, first-round linkage analysis facilitates subsequent Keynesian local income and employment estimation, thereby examining both forward and backward linkages at the same time. Other models, such as I-O, tend to only consider backward linkages (Courtney *et al.* 2006; Harrison, 1993).

The adaptability to suit study objectives is another advantage of first-round linkage analysis and several studies have tailored the approach. Two good examples of this are: the spatial tracking technique from Harrison (1993) and the extension of the standard Keynesian local multiplier approach (see next section) into an interregional multiplier model to allow for two types of economic links between sub-regions from Mitchell *et al.* (2005). Furthermore, there is also the hybrid approach developed by Lobley *et al.* (2009b), which includes data on social connections and embeddedness, thus considering a wide range of socioeconomic interactions, for example the patterns of sales and purchases, participation in the local community and the importance of networks.

First-round Linkages Weaknesses

Concentrating on just the first round of transactions does not incorporate the spatial distribution of the relevant multipliers, which makes the analysis less comprehensive than I-O modelling or SAMs in terms of capturing the whole economic impact (Courtney and Errington 2000). Also, it is not always possible to clearly distinguish between the production, distribution and retail of goods when collecting the required primary data and this can further limit the analysis (Harrison-Mayfield 1996; Harrison 1993). Furthermore, adaptations to the approach can be labour intensive, for example Courtney and Errington (2000) were only able to implement Harrison's (1993) spatial tracking technique for a small proportion of firms, although this did serve as a 'gold standard' with which to validate the survey data that was based largely on recall.

Analysing only the first-round linkages is of limited use to policy-making, as the approach does not give the reasons for the behaviour identified (Courtney *et al.* 2006). For example, while small firms may be found to exhibit strong linkages, the reasons behind that may be more complex and difficult to classify. It would be useful to be able to generalise the findings from first-round linkage studies to develop predictive models, but according to Mitchell *et al.* (2005), the data for first-round linkages in a significant number of localities would need to be analysed and collated before one could generalise findings and develop a model to predict the size of local multipliers for a given set of parameters. Issues in data collection and analysis mean that although measuring first-round linkages can be useful for decision making, it is questionable whether the observed relationships are causal or associational. As Winter and Rushbrook note (2003), one must consider other variables and counterfactuals and avoid causal relationships being implied when merely an association is demonstrated. For example, a study measuring first-round linkages to investigate the economic impact of farm businesses in a particular location will highlight the economic behaviour which is occurring, but it will not show the drivers of that behaviour nor will it identify any other behaviours or events that may be accounting for any observed economic impact. Other variables to consider include the social 'explanations' for economic behaviour and also any social ties that may influence economic linkages, but the first-round linkages approach does not cover these (Courtney *et al*. 2006; Mitchell *et al.* 2005). Whilst the relative adaptability and lesser data requirements of first-round linkage analysis would be beneficial for implementation, the limited usefulness of concentrating on just the first round of transactions make the analysis less suitable for the present study.

3.2.4 Keynesian Multiplier Analysis

Keynesian Multiplier analysis is based upon the work of John Maynard Keynes and its objective is to calculate the size of the multiplier resulting from an income injection into an economy being spent and re-spent. Keynes (1936), building upon the work of Richard Kahn (1931), argued that consumption releases purchasing power to producers and so he viewed consumption spending as the principal determinant of income growth. For Keynes (1936), consumption spending is the means by which an initial amount of expenditure creates a multiplier effect. As he believed that insufficient consumption spending is the main limitation on the growth of aggregate demand, Keynes' (1936) economic analysis focused upon the under-employment of resources i.e. the demand side of the economy and the role of the state in managing aggregate demand (Pike *et al.* 2006b). Although his analysis was based on national economies, his approach of focusing on the role of demand, rather than factor supply, has been taken up by regional economists. The Keynesian approach to regional economic modelling is virtually identical to the simplest open-economy version of the Keynesian income-expenditure model, which seeks to capture the multiplier effect of an increase in spending (Armstrong and Taylor 1993).

Figure 3.2 demonstrates how an injection of expenditure into an economy can stimulate a cycle of demand and production. This is the principle of cumulative causation, which states that an initial event can cause a larger ultimate effect. The multiplier element is the number of times the rise in income exceeds a rise in the spending injections into an economy. The multiplier theory states that, given an initial investment expenditure, income will increase by more than this investment expenditure because the incomes earned in the production of investment goods are partly spent on consumption goods (Hartwig 2004). The multiplier can be analysed both in terms of the marginal propensity to withdraw spending from an economy and the marginal propensity to consume goods produced within that economy. As expected, the size of the multiplier varies inversely with the size of the marginal propensity to withdraw and the multiplier will grow or fall rapidly in line with a rise or fall in the marginal propensity to consume locally produced goods (Armstrong and Taylor 1993; Sloman 2007). The multiplier process does not go on forever and every time incomes rise, withdrawals (savings, taxes, purchasing imports) will also rise. Therefore, equilibrium will be restored when withdrawals have risen to match the increase in injections and thus employment and income stop rising (Sloman 2007).

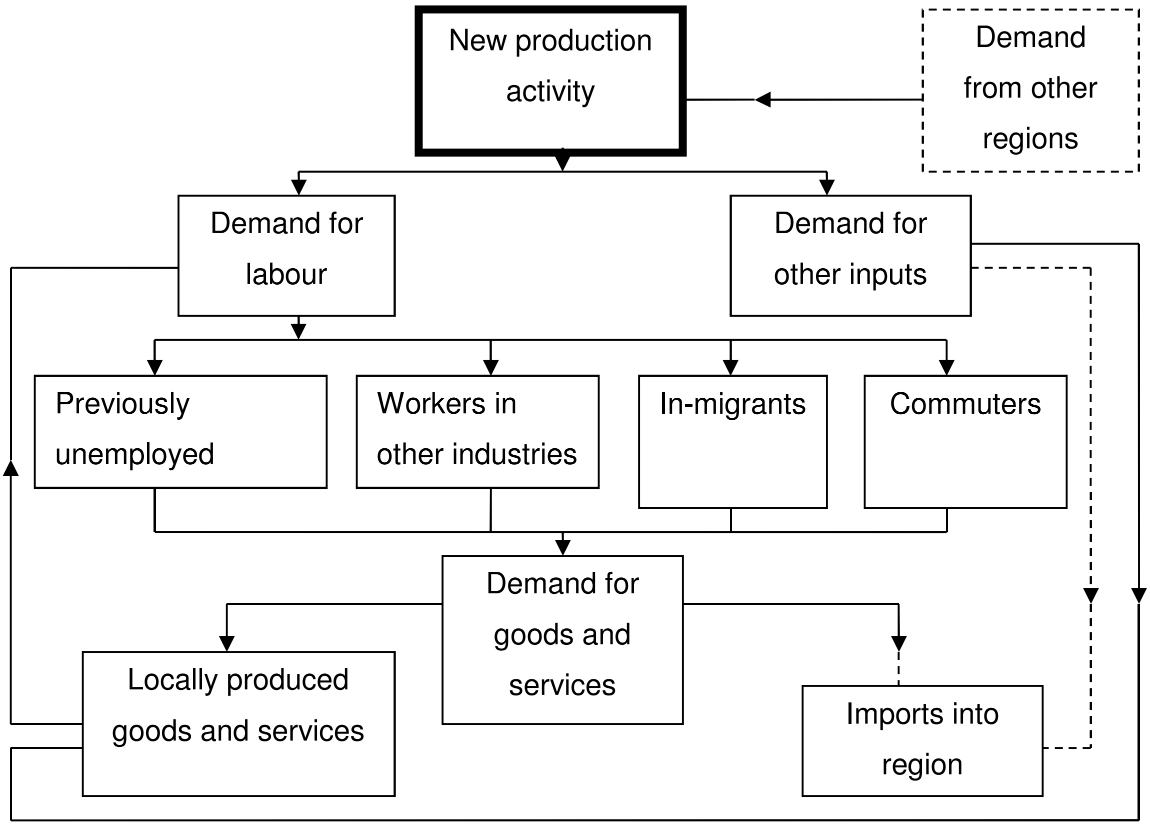

Figure 3.2: The effect of a new production activity on a region's employment, output and imports

Source: Armstrong and Taylor (1993).

Keynesian Multiplier theory underpins the model and so multipliers in the normal Keynesian sense are the ratio of final income (all rounds) to the first round increment to income (Bleaney *et al.* 1992). There are also local expenditure base multipliers and Armstrong *et al.* (1997) argue that this ratio of final income (all rounds) to initial income injection gives a more logical picture of the real extent to which the initial income remains in the area.

The basic theory underlying the Keynesian Multiplier model can be mathematically represented as follows:

$\Delta Y_r = k_r J$

Where
ΔY_r = the change in the level of income in region r;
k_r = the regional income multiplier
J = the initial income injection (or the multiplicand)

The proportion of the subsequent income flows, which leak out of the local economy after each round of expenditure, is the main factor in determining the size of the multiplier (k_r) (Glasson et al. 1988). The general process of conducting a Keynesian Multiplier analysis, as described by Armstrong *et al.* (1997), is to estimate the first-round effects separately from the subsequent rounds, as at the local level the vast majority of effects occur at round one. The local income impact is estimated first through calculating local gross output and local disposable income. The local income impact can then be crudely adapted to provide the local employment impact, through applying the average employment/output ratios to the gross local output estimate. The model can be adjusted for effects of in-commuters spending elsewhere and study-area residents spending outside the study area.

Keynesian Multiplier analysis has been used in several studies in a rural context and one good example is by Courtney *et al.* (2006). They use Keynesian Multiplier analysis as part of their examination of the nature and strength of local economic linkages associated with natural heritage in four case study areas in Scotland. Data was collected from businesses through self-completion postal questionnaires and there was a usable response rate of 20%. After assessing the extent of natural heritage-related activities in each case study area and conducting a regression analysis to identify the key characteristics of locally integrated businesses, the third strand of analysis was to estimate the multiplier effects associated with the different types of business in each area. Keynesian local income and employment multipliers specific to each of the case study areas were estimated using a combination of the questionnaire data, secondary sources and parameters from previous studies. These multipliers were then used to investigate the level of income and employment associated with different types of businesses in each study area, thereby highlighting the relative potential of natural heritage businesses for generating economic development. An important element of the multiplier analysis is the adjustment of the gross injections to allow for direct expenditure leakages. The resulting net injection figure is more appropriate for calculating the total local income effect because it is the net injection figure that actually enters the local economy. This study provides a useful example of how indirect and induced effects can be estimated with Keynesian Multiplier analysis when data collection is restricted to first-round (direct) transactions.

Another rural study which incorporates Keynesian Multiplier analysis is that by Slee *et al.* (2004). The authors sought to develop a new approach to estimating the impact of forestry on rural development by paying more attention to the spatial aspects of the local economy and they applied their methodology to two case study areas in England and one in Wales. The calculation of Keynesian local income and employment multipliers formed part of the methodology and the multipliers were used to estimate the economic value of forestry work, as well as the 'shadow values' of forestry (the metaphorical shadow of forest activity on economic activity in the surrounding area). The analysis covered upstream and downstream economic linkages, employment contribution and output contribution. The shadow value analysis is particularly interesting, as it considered how the locational decisions of businesses and households were influenced by the presence of forests and associated activities. The authors sought to quantify the capacity of businesses and households to extract value from forests and the extent to which this supports rural development. This approach has potential for use in relation to other elements of the countryside.

Keynesian Multiplier analysis has also been used to assess the socio-economic impact of agri-environment schemes. For example, the study by Mills (2002) sought to measure the additional income and employment impacts from implementing Biodiversity Action Plans in Devon. Data was collected via telephone and face-to-face interviews, and was fed into a "spreadsheet model" (p. 535), which comprised of the main socio-economic impacts of hedge restoration work. This part of the analysis identified the direct effects of expenditure on hedge restoration and a multiplier analysis was then conducted to identify the indirect and induced effects of this expenditure on the Devon economy. Existing local multiplier coefficients were extracted from other regional studies and this is a useful alternative when, like for Mills (2002), resource constraints make other modelling options such as I-O and econometric modelling unfeasible.

Keynesian Multiplier Strengths

The strengths of Keynesian Multiplier analysis are its relative ease of use and its adaptability to suit research objectives. An overwhelming number of previous local impact studies have used variants of Keynesian Multiplier analysis because I-O tables and econometric models are rarely available at the local level and they are prohibitively expensive to construct (Armstrong *et al.* 1997). Also, multiplier coefficients from other studies can be used to further save on the time and costs involved in deriving them from primary data.

Adapting the approach to suit research objectives and the nature of the study is relatively straightforward. For example, Glasson *et al.* (1988) recognised that the characteristics of a nuclear power station development project would be problematic for a straightforward Keynesian Multiplier model and so the multiplicand and the multiplier were adjusted to more accurately account for the initial high capital costs and high levels of in-migration of labour. Furthermore, although the basic Keynesian Multiplier approach only gives a snapshot of the multiplier effects at a particular point in time, it is possible to estimate to a certain extent the likely income and employment effects across a particular time period. Glasson *et al.* (1988) sought to consider the local economic impacts of all the various phases of construction, through commissioning and into full operation and rather than recalculate the multipliers for each year, the authors presented a range of results within which it is estimated that the likely local income and employment effects could occur.

Keynesian Multiplier Weaknesses

Some criticism has been made regarding the concept of the Keynesian Multiplier and its use in economic analysis. Ahiakpor (2001, 2004) acknowledges the “irrefutable logic” (2001, p. 767) of people typically spending a fraction of their income, albeit a large one, on consumption and this then acting as income for sellers, but his issue is with the Keynesian focus on consumption spending as the sustaining and driving force of an economy. He argues that initial spending must first have been earned from production, meaning that growth is actually driven by concurrent production and the subsequent exchange of total net output. This critique stems from the Keynesian approach being demand-driven with an assumption of elastic supply and it is argued that Keynesian analysis is too focused on demand management policy (Black 2002). Also, it must be remembered that the multiplier effect relies on the marginal propensity to consume (MPC). The MPC is the amount by which consumption increases when disposable income increases by one pound (Stiglitz and Driffill 2000). Individuals and businesses have an MPC, which is not homogeneous across the economy and neither is the nature of consumption. Therefore consideration needs to be given to the targeting of expenditure to generate a higher MPC. Another critique of note is that the multiplier effect does not work instantaneously. As Sloman (2007) observes, when increasing income injections it takes time for the full multiplied rise in income to spread across the economy and Keynesian Multiplier analysis does not account for this time element.

In summary, Keynesian Multiplier analysis with appropriate modifications is well suited to assessing the economic impact of major projects, although the analysis is only as good as the information sources on which it is based (Glasson *et al.* 1988). Secondary data can be easily incorporated from other studies in order to save on time and cost and in fact, Armstrong *et al.* (1997) considered their study to be unusual in basing their multiplier analysis solely upon primary data. However, caution must be exercised when attempting to generalise the impacts from multiplier analysis, as most multipliers are location specific and cannot be reliably transferred to other areas (Armstrong *et al.* 1997; Mills 2002). Multipliers reflect the variations in the size and structure of local economies and given that there will be variations in project characteristics, it is difficult to widely apply findings. Generalisation from findings is not completely impossible and Armstrong *et al.* (1997) note that generalisation can be made for similar projects conducted in similar study areas.

3.2.5 Input-Output Models

Input-Output (I-O) models trace the interactions of local industries with each other, with industries outside the region and with final demand sectors. From the early days, I-O modelling promised an operational general-equilibrium model of an economy and it has grown in importance since (Thomson 1993). The approach was popularised by Wassily Leontief in the 1930s and was originally applied in a national context. It was later adapted to regional economies and it is now more widely used for regional level analysis (Loveridge and Roper 2004). The conventional form of I-O model treats final demand (demand-driven model) or primary inputs (supply-driven model) as exogenous variables and solves for the level of output of each sector accordingly. The demand-driven and supply-driven models represent two extreme cases in which, respectively, only the backward linkage or only the forward linkage effects are causal and the two effects should never be added together (Eiser and Roberts 2002).

The basic model (see Figure 3.3) starts with a transactions matrix, constructed on the principles of double-entry book-keeping, which captures inter-industry flows and final demand with the units as currency amounts, as opposed to physical quantities. Algebraic manipulation is employed to move all the outputs to one side of the equation and through inverting the resulting matrix, the modeller can determine how a change in final demand translates into demand for additional inputs from the various sectors of the economy. The rows of the matrix represent the forward linkages (sales of outputs) from a row sector to other sectors shown in the columns and the column elements represent the backward linkages (purchases of inputs) from the column sectors to the other row sectors. The corresponding rows and columns for each industry sum to the same total and thus gross input equals gross output, thereby giving the model its name. In general, the larger the elements in a row and column for a sector, the greater that sector's potential to stimulate growth through the creation of forward and backward linkages (Taylor and Yunez-Naude 2002).

	Production	Final Demands	
Distribution	Interindustry structure	Consumption patterns	Total outputs
Final Payments	Incomes	Nonmarket transfers	
	Total inputs		

Figure 3.3: The transactions table as a picture of the economy

Source: Schaffer (Schaffer 1999)

Regional I-O modellers are faced with the choice either to collect primary data or to adjust national I-O tables by mechanical methods (Midmore and Harrison-Mayfield 1996). An example of such a mechanical method is the Generating Regional Input-Output Technique (GRIT), which was developed by Jensen *et al.* (1979). This involves combining: micro data from surveys, a mechanical reduction of national I-O tables to represent a local area and other secondary data including tax rates. This conversion of national coefficients to regional coefficients creates what Jensen *et al.* (1979) term "hybrid tables" (p. 42).

The Leontief multipliers, which are calculated from the I-O matrices, measure the multiplicative effect of changes in final demand for sectoral outputs (Taylor and Yunez-Naude 2002). To forecast the consequences of an increase in final demand, two types of multipliers can be calculated (Armstrong and Taylor 1993). Type I multipliers are the sectoral output multipliers (showing how the output of each sector is affected when final demand for output increases by £1) and the household income multipliers (the effect of changes in output on household income). Type II multipliers show the proportional increase in consumption/demand due to an increase in household income. Note that for

Type I multipliers, households are treated as exogenous and thus are unresponsive to changes in income, but for Type II multipliers households are endogenous, meaning that they are treated as a producing sector rather than a final demand sector. Using the Type II multipliers allows modellers to capture the direct, indirect (relationships between sectors) and induced effects (effect on household consumption) from changes in final demand due to treating the household sector as endogenous, whereas the Type I multipliers will only capture the direct and indirect effects (Armstrong and Taylor 1993).

I-O models have been popular for impact analysis in a rural context and many interesting examples can be found in the literature. Munday and Roberts (2001) examined the economic contribution of forestry to the rural economy of Wales. They conducted a disaggregated industry analysis as a disaggregation of the forestry sector was necessary to evaluate transactions within the forestry industry. Welsh I-O tables were supplemented with specific transactions data from a survey of Welsh forestry industry activity, but the authors found difficulty with capturing the income of self- employed labour. The authors also noted significant self-employment in the extensive sub-contracting in the upstream sectors of the Welsh forestry industry and they concluded that only extensive primary data collection would satisfactorily capture this income effect.

Hyde and Midmore (2006a) considered the economic impacts of the environment in the National Parks of Wales. The authors faced the problem of Welsh National Parks, in economic terms, being relatively very small and highly specialised, which meant that internal economic linkages were very weak but linkages between the Parks and the rest of the Welsh economy were much stronger. The solution was to use an inter-regional I-O model, which identified the transaction flows between both industries and regions. Another interesting element of this study was the use of a gravity model to populate the I-O table rather than extensive survey work. This approach uses an equation in which the trade flow of a product or service between one region and another depends on their relative sizes as, respectively, producers and consumers, and the cost of transport between them (usually based on the physical distances involved). The national transactions matrix for Wales was partitioned into four separate regions using data from the Annual Business Inquiry (ABI), but due to data limitations and the absence of some sectors in the National Parks the 74 national sectors had to be aggregated into just 42 sectors. Also, the ABI wards did not map precisely to the National Parks and therefore data precision had to be tested through a series of estimates. Supplementary data was obtained through corporate and individual interviews to support the I-O derived estimations. The multipliers were derived from the relationship between the level of overall output indirectly dependent on environmental activities and the income and employment effects.

Eiser and Roberts (2002) investigated the economy-wide output and employment effects of the changing patterns of afforestation in Scotland and they used Scottish I-O tables to estimate both demand and supply multipliers. Extensive survey work was required to disaggregate the forestry sector within the Scottish I-O tables, as data was required on outputs, expenditures and financial flows for four different woodland types. Furthermore, the authors had to adapt the I-O model to make forest output exogenous to the system, as the study focused on the economy-wide output and employment effects from changes in total output for each woodland type. A demand-driven and a supply-driven I-O model were developed and as both models were closed, the resulting multipliers indicated the total effect on the local economy.

A final I-O study worth noting is that by Spörri *et al*. (2007) on the economic impact of river rehabilitation. They estimated the changes in local employment and local economic output resulting from government spending on a river rehabilitation project in Switzerland. They used the Location Quotient non-survey technique to construct local technical coefficients from national data and local employment data. As the authors observed, the model is applicable elsewhere in Switzerland as long as local employment data is available, but the authors do offer some words of caution that are relevant for other I-O studies. Firstly, it is acknowledged that different types of river rehabilitation projects will require different proportions of products and services, thus when applying the model to other projects analysts should be careful when specifying the exogenous changes in final demand. The second point is that the rehabilitation projects only last for a limited time and so consideration needs to be given to the context of the impacts.

I-O Strengths

The advantage of I-O tables is in their detailed representation of an economy's sectoral structure, which provides a valuable basis for analysing changes in that economy (Roberts and Thomson 2003). When primary data is incorporated, the accuracy of estimates is likely to significantly improve and in some cases, detailed survey work can highlight specific 'wrinkles' in industry behaviour (see Jones and Munday (2004)).

I-O models are particularly useful in rural economic development analysis because they focus on linkages to other local industries, as well as the primary locus of change. Success in rural development may be as much dependent on endogenous upstream and downstream linkages as on the viability of the initial injection and I-O models can capture these effects (Thomson 1993). Thomson also observes that I-O models go beyond the usual one-dimensional range of statistics by treating the regional economy as a whole. This enables them to analyse multi-sectoral development, which Thomson (1993) argues is the preferable approach to measuring local economic impact.

I-O models can be integrated with econometric (EC) models to overcome the restrictive assumptions for using either model alone (Rey 2000). The focus behind this integration has been to incorporate price responsiveness into I-O modelling, but the integration also brings the EC models' ability to analyse across time and to account for uncertainty, thereby further improving the capability of I-O modelling (Rey 2000). Another advantage of the integrated EC/I-O model is that it captures all household income. whereas the Type II multipliers of standard I-O models only capture extensive income changes (West 1995).

There is also the I-O subsystems approach, as described by Llop and Arauzo-Carod (2012), which can treat an individual sector or group of sectors as a subsystem that interacts with the other sectors. This allows a particular sector to be analysed as a single unit without modifying the main characteristics of the system to which the unit belongs. The main advantage is being able to isolate the relations of a limited number of activities from the whole system, thereby providing specific information about the production relations of individual units (Llop and Arauzo-Carod 2012).

I-O Weaknesses

There are three critical assumptions in conventional I-O models which limit the analysis (Armstrong and Taylor 1993): production technology is of fixed proportions meaning that industries have to double their input to double their output, the production technology relationship is assumed to be constant over the forecast period, and there are no constraints on productive capacity, meaning that the supply of factor inputs is assumed to be perfectly elastic. Furthermore, I-O analysis focuses purely on demand-side influences of structural change, thus ignoring the supply-side constraints and drivers of change (Roberts and Thomson 2003).

Usually, a compromise has to be sought on data collection for regional I-O models as neither primary data collection nor mechanical adjustment of national I-O tables is completely satisfactory (Midmore and Harrison-Mayfield 1996). As Midmore and Harrison-Mayfield (1996) observe, compiling regional I-O tables from survey data requires large quantities of data, which are often difficult or impossible to obtain. Disaggregation from national multiplier estimates is not straightforward either, as the input mix at national level may not be representative of the local level. For example, Spörri *et al.* (2007) acknowledged that there was probably some mismatch between the composition of the construction sector represented in the I-O table and the actual mix of construction companies working on the project being studied. Also, there can be an issue with not knowing the home region of firms or workers, meaning that the I-O model has to be left open with respect to households and thereby underestimating the impacts if additional employees spend their income locally (Spörri *et al.* 2007).

Hybrid models, which use limited survey data to modify national I-O tables to reflect local economies, work on the assumption that the two are similar but this may not be the case for smaller, specialised economies (Hyde and Midmore 2006). However, the data for estimation must still be relevant and this can be difficult if the only available data is from different years such as in Jones and Munday (2004), who had to revalue a 1996 I-O table to estimate a 1998 one. The authors' concern was that business behaviour may have changed between the periods therefore making the adjusted data 'hypothetical'.

In summary, the conventional I-O model is the simplest both in terms of its construction and implementation, but it is also the most naïve in terms of its assumptions and limitations, which may not be acceptable given that an economy is a changing entity (West 1995). Furthermore, given the considerable data requirements and the difficulties of adapting the model to the local level, it can be concluded that the I-O methodology is unsuitable for the present study.

3.2.6 Social Accounting Matrices (SAMs)

A SAM is a general equilibrium data system, comprising of income and expenditure accounts which link production activities, production factors and institutions (Courtney et al 2007b). Most SAM studies are concerned with the economies of single countries, but adapting a SAM for regional and sub-regional modelling is analogous to adapting I-O models for regional and sub-regional modelling (Loveridge and Roper 2004). As SAMs place more attention on the distributional aspects of injections into an economy, they are employed when the analysis is to focus on economic development as opposed to economic growth (Loveridge and Roper 2004).

SAMs are a natural progression of I-O models and they are composed of a single entry accounting table, with the rows representing receipts and the columns representing expenditure (Roberts 1991). Figure 3.4 shows the direction of income flows between the three main types of accounts in a SAM. The SAM model is characterised by the disaggregated treatment of the non-production accounts, with inter-industry transactions confined to a single sub-matrix. The most noteworthy difference when compared to I-O models is the inclusion of both row and column entries for various types of factors of production. This highlights the income distribution through mapping the value-added payments from production to the owners or providers of factor services i.e. the institutions

(Roberts 1991). The transactions matrix may record the same flow in multiple ways, so as to fully capture the distributional effects and the transition from the table to the SAM Leontief multiplier is analogous to deriving the multipliers in I-O modelling (Loveridge and Roper 2004). By specifying that at least one of the accounts within the SAM is exogenously determined, a coefficient matrix can be derived to show the pattern of linkages between all of the remaining (endogenously determined) accounts (Roberts and Russell 1996).

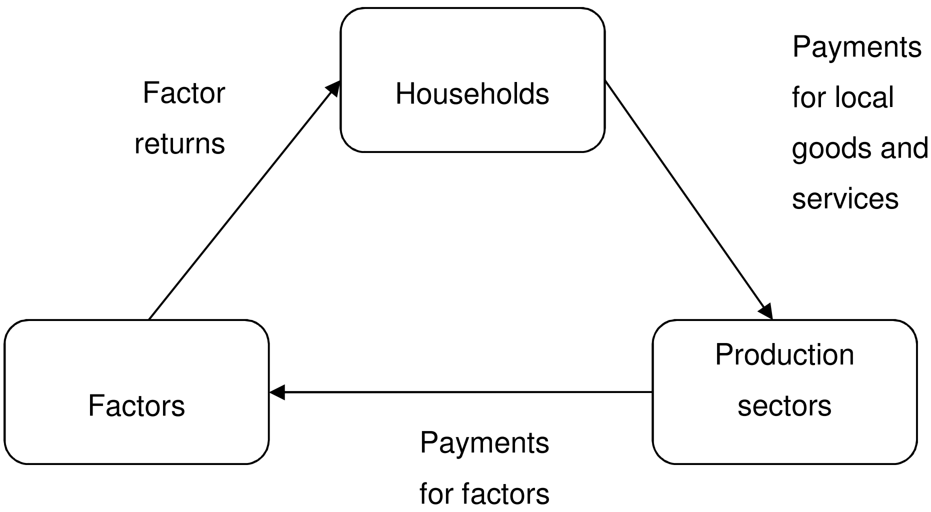

Figure 3.4: The direction of income flows between the three main types of accounts in a SAM

Source: Roberts (2005)

SAMs have been used within a rural context mostly to explore rural-urban linkages. Roberts (1997) used a SAM to quantify the relative importance of different types of extra-regional income flows in the Western Isles. The SAM construction required significant primary data collection with 4 independent surveys covering: 179 businesses, 97 local households, local organisations, public bodies and tourists. The characteristics of the Western Isles were well suited to the study, but the analysis was restricted primarily to a descriptive analysis of that particular rural economy.

Roberts (1998) employed an inter-regional SAM-based model to analyse the nature of rural-urban linkages in the Grampian region of Scotland. The SAM was largely constructed with secondary data and this is not surprising, given the volume of data required. There were also some implicit assumptions required for the analysis: output levels were assumed to be proportional to employment levels, technologies and input demands were assumed to be the same for both rural and urban firms in each sector and it was assumed that all Grampian residents and only Grampian residents work in Grampian. As Roberts (1998) notes, the collection of primary data could help reduce the need for some of these assumptions and in another SAM analysis that Roberts conducted in Grampian (See Roberts (2000)), some survey-based estimates were used to replace mechanically derived coefficients in cases where the survey data was considered more accurate.

Courtney *et al.* (2007b) also investigated rural-urban linkages, this time at the sub-regional level. The study sought to estimate the strength of local employment and output multipliers for various economic sectors and it is based on Roberts (1998). The focus is on the local economic integration and the spatial economic behaviour of businesses in England. Inter-regional models were created, with primary data collected via postal questionnaires plus mechanically derived data from the GRIT method. As well as being subject to the usual assumptions for SAMs, there was also a limitation regarding the size of the local economy models. The relatively small proportion of the total inputs and outputs from the firms that is retained within the local economy made the coefficients very small and more prone to statistical error.

SAM Strengths

SAMs offer a more comprehensive analysis of the direct, indirect and induced effects throughout the economic system because, as Roberts (1991) notes, the more types of endogenous accounts there are in a Leontief system, the more varied the types of exogenous shocks that can be investigated. With SAMs, the impact on all endogenous variables from exogenous injections to factor incomes can be seen due to the disaggregation of the factor accounts. Furthermore, Roberts (1991) observes that SAMs can account for different production sectors using different combinations of factors and they also account for factors being provided by different categories of institutions. As seen in Seung and Waters (2006), a SAM can better facilitate the unique features of some types of economy more than an I-O model would allow. In particular, a SAM enabled the authors to assess the distributional effects across different types of households and institutions, due to the way in which SAM accounts trace factor payments to institutional spending accounts by place of residence. It can be concluded then that the major strength of SAMs is their integration of I-O and expenditure system approaches into a single model, which captures production linkages, consumption linkages and the interactions between the two (Taylor and Yunez-Naude 2002).

SAM Weaknesses

The two main weaknesses with SAMs are their demanding data requirements and their required assumptions. Roberts (2003) found that the construction of SAMs relies heavily on primary data, which had to be collected through four independent surveys. Regional SAMs can be constructed from secondary data scaled down from national level, but as Seung and Waters (2006) observed, the regional SAM is then open to issues such as national level production functions and national average consumption behaviour not being representative of the region under consideration. In fact, SAMs require even more data estimation or omission than I-O models and because they measure data more than once, internal inconsistencies can arise which will need reconciled (Loveridge and Roper 2004).

There are several restrictive but necessary assumptions underpinning SAMs and one is that they assume fixed prices. In the context of modelling local economies, Taylor and Yunez-Naude (2002) state that an actual local economy is likely to be characterised by market imperfections, which will cause prices to diverge from the market prices outside the locality. Therefore, SAMs are most useful only when there are fewer local resource and technological constraints on production. Further assumptions relate to supply and substitution. SAMs assume perfectly elastic supply, which is reflective of a Keynesian demand-driven system, but whilst supply may be elastic in the long-term, it can be inelastic in the short term. The SAM model is also unable to account for substitution effects and as Roberts (2005) notes, the limitations of a SAM are really the underlying assumptions of the Leontief model.

In terms of usefulness, it is argued that the restrictiveness of their assumptions suggests that the results of SAM analysis are best interpreted as ex post indicators of inter-dependencies, rather than ex ante predictors of the impacts of change (Courtney *et al.* 2007b; Roberts 1998). Also, given that SAMs produce only a snapshot of an economy at a fixed point in time, it can be said that they are of somewhat limited relevance to policy making. As Roberts and Russell (1996) observe, the basic SAM Leontief model contains no policy variables and so to carry out policy analysis, analysts must translate or reinterpret the impact of specific policy instruments as injections to the system from exogenous accounts, which is not always easy. In summary, the comprehensiveness of SAM analysis makes it an attractive methodology, but the need for comprehensiveness must be balanced against the large data requirements and underlying assumptions.

3.2.7 Computable General Equilibrium (CGE)

CGE models were developed in response to the perceived issues with I-O and related models and they first appeared at national level, before being adapted to the regional level (Loveridge and Roper 2004). CGE models are optimisation models, providing an optimal solution mix of endogenous variables in response to an exogenous shock (West 1995). Price effects, nonlinearities in response to policy changes and the implications of resource constraints on production elasticities can all be captured within the model (Taylor and Yunez-Naude 2002). Mathematically, a CGE model is a complex system of linear and non-linear behavioural and equilibrium equations, with numerical algorithms used to find new equilibrium prices and quantities (Torma 2008). The central assumption of CGE models is that flexible prices will adjust until the economy reaches a new equilibrium following a shock. Through comparing a benchmark and new equilibrium, an analyst can show how key macro variables of the economy are affected by the shock (Torma 2008).

CGE Strengths

The advantages of CGE models are in their realistic assumptions about the production process, its flexibility and their ability to capture distributional effects (Loveridge and Roper 2004). CGE models are considered to be more theoretically satisfying in terms of microeconomic theory, as supply and demand are explicitly determined with full price and quantity response given in solution (West 1995). Furthermore, CGE models add non-linear behavioural equations and the structure of price adjustment, via substitution possibilities between factor inputs, sectoral inputs and consumption goods (Torma 2008).

CGE Weaknesses

CGE models require the specification of a large number of parameters and coefficients and because these are generally not available, ‘best guess’ estimates have to be used which can introduce large unknowns (West 1995). In fact, a lack of adequate regional data has long prevented CGE models being applied in regional situations (Torma 2008). Furthermore, the need to explicitly model so many systems often leads to over-determination, which means that there can be more equations than free variables to be established by the model and the modeller is left to decide how to handle this (Loveridge and Roper 2004). CGE models present difficulties for policy analysis as they include fewer sectors than some other models, meaning that there can be a loss of detail, which presents difficulty in mapping the exact path of change (Loveridge and Roper 2004). Also, many CGE models assume perfect competition and thus a market economy, but this may not always be the case in the study area (Torma 2008). Given the characteristics, strengths and weaknesses of CGE models, it is appropriate to discard them at this stage of the model consideration and selection process. In particular, their highly technical nature and the subsequent requirement for expert knowledge, makes CGE modelling unsuitable for use by practitioners who have a limited understanding of econometrics.

3.3 Conclusion

This chapter has discussed the previous findings of economic impact studies and has discussed why the LM3 modelling approach was chosen ahead of others for the present study. Finally, it is worth noting Slee's (2006) observation that it is possible to identify a continuum of socioeconomic impact approaches, ranging from quantitative economic approaches through to criteria-based indicators and on to more participatory qualitative approaches. In terms of building upon the purely quantitative LM3 analysis in the present study, LM3 can be used within a mixed-methods approach like that from Slee (2006), which sought to capture the full range of social and economic values of forests. It was conceivable that a similar approach could be taken for capturing the economic and social values of traditional rural working buildings. Thatcher and Sharp (2008) decided to supplement their LM3 study with qualitative research, as they considered the LM3 calculations to be indicators of the benefits of local procurement rather than a reliable monitor of the progress of encouraging local sourcing. However, including such extensions to LM3 in the present study would likely detract from the ease of use of the practitioner guidance, but perhaps such extensions could be useful when heritage conservation and management decisions are being made. The previous chapters have set the context for the research and they have identified and discussed the chosen approach. The implications of previous studies for the present research have been considered and the next chapter will discuss the considerations made when constructing the research method.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.0 Introduction

The purpose of this chapter is to describe and explain the methodological approach and to outline the factors that were taken into account during the research design process. It begins with a discussion of the data collection and case study selection procedures, before describing the reliability and validity checks that were carried out on the data.

4.1 Data Collection

It was decided that a quantitative approach to data collection and analysis was most appropriate to satisfy the aims of the research because the main indicators of local economic impact have been identified as income generation and job creation. Therefore the selection of an appropriate mode of data collection focused on quantitative methods and sources. Primary data was necessary because no existing information sources could provide the required level of detail at the sub-regional level. Disaggregation of national or regional data was inappropriate as it would not have provided a sufficient level of sectoral detail at the required spatial level. A similar issue was faced by Hyde and Midmore (2006), as their study area boundaries did not coincide with those for the regional data. The present research is concerned with the impacts of a specific niche sector, namely traditional rural building works, on sub-regions across England. Disaggregation of national, or even regional data, would simply not provide the required level of detail for such a narrow area of interest.

However, before data could be collected, decisions had to be made regarding the boundary within which data would be collected and the design of the data collection instrument. Previous local economic impact studies have represented the local economy in a variety of ways such as the drive time from the entity in question (Lobley *et al.* 2009a; Mills *et al.* 2010), distance from the entity (Courtney *et al.* 2007b; Harrison-Mayfield *et al.* 1998) and administrative boundaries (Edwards *et al.* 2005; Thatcher and Sharp 2008). To allow data to be collected from different locations in England it was important to have a consistent representation of ‘local’ for use anywhere in England. As Winter and

Rushbrook (2003) note, the most important factor in any comparative study is that the definition of what is local in different locations must be broadly comparable so that variations in income generation and leakage between localities can be compared on the same baseline. Also the distances travelled to access 'local' services will vary considerably between remote upland areas for instance compared to urban fringe countryside and so a representation of locality is required which takes account of variances in topography, governance and accessibility (Lobley *et al.* 2005). Given these considerations, the drive time option was chosen in order that the same definition of the local economy could be applied to all data collection sites regardless of the geographical location of the buildings. This was preferable to the use of arbitrary boundaries such as distance in miles or administrative areas as these make it more difficult to compare geographic areas which are likely to differ in terms of their geographic and administrative context.

Drive times of 30, 40 and 60 minutes have all been used in previous studies (Courtney *et al.* 2006; Courtney *et al.* 2013; Lobley *et al.* 2009a). However, the National Trust were first consulted on what would be the most appropriate drive time in the context of their 'Going Local' strategy. The National Trust acknowledged that 'local' is a difficult construct to define, as it is likely to mean different things in different contexts. The 'Going Local' strategy has been designed to encourage National Trust regions and properties to freely interpret what local means to them. To measure whether a particular property plays a part in the local community, the National Trust had chosen to survey visitors from within a 15 mile radius as it believed this to be a reasonable generic reflection of the distance that the public might consider to be local. Given the difficulties of using distance in a comparative study, it was agreed that a 30 minute drivetime area would be broadly in keeping with the National Trust's approach. This approach would also allow comparison with the studies by Mills *et al.* (2010) and Lobley *et al.* (2009a).

4.1.1 Sample selection

Enough buildings had to be included to provide a sufficient quantity of data for the local multiplier analysis, but equally the number of field interviews had to be feasible within the research time frame. The decision on sample size was guided by the time taken in previous studies (see Table 4.1) to collect LM3 data and advice from NEF (Sacks 2002), on the length of time that should be allowed for data collection. Table 4.1 presents the length of time taken for data collection in previous LM3 studies and it should be noted that only Thatcher and Sharp (2008) did not have a team of interviewers. The guidance from NEF is to allow between one and two hours for the initial expenditure interview and then between five and twenty hours for follow-on interviews, depending on the required number. The present study required up to two interviews per building (one for the conversion works and one for the re-use) potentially equating to three hours of interviewing per building before any contractors or suppliers were contacted. Given this, it was considered unfeasible to conduct even a similar number of interviews as Edwards *et al.* (2005), even though a similar volume of data to previous studies was desirable. There was also the issue of how much time the National Trust's project managers could commit to participating in interviews, especially given the significant organisational change that was taking place within the National Trust during the research period. Taking all these factors into account, it was decided that collecting data from 30 buildings would be both feasible and would provide enough data for the analysis. A list of the selected buildings can be seen in Table 4.2. The buildings were selected through non-probability sampling, as there was no sampling frame available from the National Trust. Obtaining an appropriate list of buildings from which to sample involved approaching gatekeepers (Punch 1998) and key informants (Payne and Payne 2004). Snowball sampling (Payne and Payne 2004) was also employed, as the gatekeepers and key informants were able to use their networks to identify further building conversion projects for potential inclusion in the study. The majority of the buildings in the study are either lone farm buildings or farmstead complexes, but in order to obtain the required 30 buildings it was necessary to widen the selection criteria to include other rural working buildings. It was also necessary to seek the National Trust's permission to include buildings which they did not own. This meant that the final sample included buildings such as stableblocks, coach houses and kennels, which resulted in a sample that contained more of the variety of traditional rural working buildings under National Trust ownership. As lone farm buildings and farmstead complexes are not the only redundant building types to be converted for new uses by the National Trust, it was not considered a problem to include other types of traditional rural working buildings in the sample.

Study	Number of interviews	Time taken
Edwards *et al.* (2005)	42 Agreement Holders, 12 contractors and suppliers	6 weeks for Agreement Holders, 1 month for contractors and suppliers
Courtney *et al.* (2007a)	53 Agreement Holders, 22 contractors and suppliers	2.5 months for Agreement Holders, not stated for contractors and suppliers
Thatcher and Sharpe (2008)	4 managerial interviews, Postal surveys distributed to 123 staff and 11 suppliers	2 months in total
Lobley *et al.* (2009a)	61 organic producers, suppliers not stated	1.5 hours per interview
Courtney *et al.* (2013)	360 Agreement Holders, 85 contractors and suppliers	1.5 hours per interview

Table 4.1: Time taken for LM3 data collection

Building	Region	County	Use	Conversion works or re-use
Tyntesfield Home Farm	South West	Somerset	Visitor restaurant and shop	Both
Tyntesfield Sawmill	South West	Somerset	Education centre	Both
Sandy Hill Farm	South West	Gloucestershire	Fruit juice production	Both
Stones Farm	South West	Gloucestershire	Manufacturing	Both
Brompton Farm	Midlands	Shropshire	Cookery school	Both
Cats Abbey	South West	Gloucestershire	Holiday let	Both
Stowe New Inn	South East	Buckinghamshire	Visitor centre	Conversion
Coleshill Model Farm	South East	Wiltshire	Estate office	Re-use
Coleshill Stable Yard	South East	Wiltshire	Commercial units	Re-use
Coleshill Carpenters Yard	South East	Wiltshire	Village shop & workshops	Re-use
Old Slaughter House	South East	Wiltshire	Pie maker	Re-use
Hills Yard	South East	Oxfordshire	Textile printing	Re-use
Red House Farm	North West	Cheshire	Farm shop & tea room	Both
Dunham Massey Home Farm	North West	Cheshire	Wardens base	Re-use
Big Tree Farm	North West	Cheshire	Microbrewery	Both
Old Laundry Cottages	Midlands	Nottinghamshire	Visitor shop	Both
Hardwick stable block	Midlands	Derbyshire	Visitor restaurant and shop	Conversion
Maypole Brewery[3]	Midlands	Nottinghamshire	Microbrewery	Re-use

Table 4.2: Building conversion and re-use projects

[3] Not a National Trust tenant

Building	Region	County	Use	Conversion works or use
Kennels	Midlands	Nottinghamshire	Microbrewery	Both
Oast House Barn	Midlands	Herefordshire	Microbrewery	Both
Westley Bottom	East of England	Suffolk	Regional office	Both
Coach House	South East	Oxfordshire	Visitor reception	Both
How Hill Cottages	Yorkshire & North East	Yorkshire	Holiday let	Both
Nostell Priory stable block	Yorkshire & North East	Yorkshire	Visitor restaurant and shop	Conversion
Widdop Barn	Yorkshire & North East	Yorkshire	Holiday let	Both
Polesden Lacey	South East	Surrey	Visitor restaurant & shop	Conversion
Morden Hall Snuff Mill	South East	Surrey	Education centre	Both
Morden Hall stable block	South East	Surrey	Exhibition centre	Conversion
Sheringham Park	East of England	Norfolk	Visitor reception	Both
Horsey cottages	East of England	Norfolk	Holiday let	Re-use

Table 4.2 contd: Building conversion and re-use projects

4.1.2 Variable design

Dependent

As was described in chapter 2, when analysing the spatial distribution of transactions it is important to note that a transaction constitutes three distinct but inter-related elements: number, financial value and distance. The distance element can be addressed through defining appropriate geographical boundaries and calculating the transactions which fall within them. This was discussed in the previous section. Therefore the remaining issues for the design of dependent variables were: whether to use the number or financial value of transactions as the principal measure; whether to use an absolute measure or the proportion of transactions; and the categories of transaction to incorporate into the analysis. There were two main factors to consider when selecting the dependent variables:

- comparability with existing empirical studies;
- research aims.

The number of transactions may be significant in terms of the movements but it does not give the true significance of the transaction to the local economy. For example, a high number of transactions might involve the purchase of low order goods which would contribute relatively little to the income generation within a locality. It is therefore necessary to know the value of the transactions. Also, as Harrison (1993) observes, it is a matter of subjective opinion whether analysis based on the number of transactions is valid for determining local dependency. Therefore, the financial value of transactions was chosen as the principal measure as only value matters when considering economic growth. The frequency of transactions is more of a concern for transport sustainability.

The previous studies of economic linkages discussed in chapter 3 used the proportion of transactions, either by value or number, attributed to various geographical areas to represent the strength of economic integration. As the present study uses the same measure, it will enable comparison with existing findings. Also, this helps overcome the potential issue of firms whose transactions are significantly higher financial sums than others. The use of absolute values of transactions could give an un-representative picture of the relative strength of local integration.

As identified in the existing research into local economic linkages, there are two categories of transaction to consider in the analysis of firms: downstream linkages (sales); and upstream linkages (sourcing supplies). With regard to households, the concern is only with consumption of goods and services.

Independent

The design of the independent variables is related to the particular National Trust adaptive re-use projects from which data could be collected. The sample selection process has been discussed in section 4.1.1.

4.1.3 Questionnaire design

Operationalisation of the conceptual model produced a range of measures and indicators for the identified concepts. These were then used to design the survey instruments, which involved constructing a series of factual questions. The majority of the questions were closed questions to ensure accuracy and objective comparability between participants. While such questions do not disadvantage less talkative and less articulate participants who may struggle to answer open questions (De Vaus 2002), open questions were included to provide elaboration on the sourcing of goods and services and on the participants' perception of the local economic impact of their adaptive re-use project. Therefore, the questionnaires were semi-structured, incorporating quantitative data collection for the socioeconomic impact assessment and open questions to gather qualitative responses to provide deeper insight into certain aspects of the transactions and activity being analysed. The questionnaires were divided into sections, each targeted at specific areas of the research:

- General information about the participants' business/activity.
- Information about the building works and re-use of the converted building.
- Detailed information about the expenditure associated with the activity being investigated including the participants' personal household expenditure.

During the process of questionnaire design and construction, the advice of Sapsford (1999), De Vaus (2002), Walliman (2006) and Matthews and Ross (2010) proved useful. Particular consideration was given to the format, wording and sequence of the questions. It was important that the questions, particularly those regarding transactions, obtained the necessary information as simply as possible. Efforts were made to ensure the questionnaire was as clear and concise as possible and provided the necessary explanation and instructions to ensure that participants would understand the concept of the questions. Efforts were also made to avoid bias and non-response in the questionnaires through avoiding ambiguity, leading questions and vague or loaded words in the questions. Some of the more technical questions relating to economic activity required the participants to recall or estimate information and so it was necessary to provide ways to facilitate this. One solution was including a suitable breakdown of categories to aid participants' in recalling the information.

With regard to the sequence of questions, the advice of Matthews and Ross (2010) was followed. They advise that the more sensitive questions are placed in the middle or end of questionnaires, with more straightforward questions at the beginning. Therefore, the questionnaires began with a set of general questions, before focusing on the more detailed and technical questions towards the end. Specific issues around question wording and layout for each of the questionnaires are discussed below. The full questionnaires can be seen in Appendices 9-12.

Conversion works questionnaire

This questionnaire was designed for completion by the person overseeing the conversion works and it was split into sections to capture:

- General information about the building undergoing conversion and the works which were carried out, including the project aim and sources of funding.
- Detailed information about the conversion works expenditure.
- Open questions on the perceived impacts of the conversion works.
- The participant's personal household expenditure.

The main questions included details about the building works, the funding sources and how funds were spent.

Building user questionnaire

This questionnaire was targeted at the main user of the building and it was split into the following sections:

- General information about the building user and what the building is now used for.
- Information about employment and turnover.
- Information about sourcing goods and services.
- Detailed information about the expenditure arising from the building's use.
- Perceptions of using the building.
- The building user's social impact on the local community.

The main questions included details about the use of the building, expenditure and the sourcing of goods and services.

Contractors/advisors questionnaire

This questionnaire was designed for completion by building contractors and other construction advisors/professionals, such as architects and engineers. Separate contractor and advisor questionnaires were not designed because the questions for each were considered to be very similar. The questionnaire sections were as follows:

- General information about the business.
- Purchases and sales.
- Impact of work on rural vernacular buildings.
- Perceived impacts of rural vernacular building work on the local economy.

The main questions covered income and expenditure in relation to traditional rural working buildings as well as information on sourcing.

Suppliers questionnaire

The suppliers' questionnaire focused more on the required expenditure information and was thus more succinct and contained fewer open questions. This reflected the fact that the suppliers are the most removed from the conversion works and building re-use in terms of expenditure movements, thus contextual information was considered to be less important. The suppliers' questionnaire was split into:

- Employment and turnover.
- Purchases and sales.

The main questions were on business expenditure and sourcing.

Due to the nature and complexity of the questions, all questionnaires were administered face-to-face. As Sapsford (1999) notes, this approach is most appropriate when questions are complex or numerous and exacting. It was particularly important to ensure that participants had sufficient time to answer questions which required accurate financial estimations to be made and/or the consultation of relevant documents.

4.1.4 Map creation

Maps were used to illustrate the boundary of the local economy for each building. Sacks (2002) advises that the use of a map which marks the area defined at the local economy is helpful in allowing participants to visualise the geographic area on which the study is focused. Previous studies (Courtney *et al.* 2007a; Edwards *et al.* 2005; Lobley *et al.* 2009a; Mills *et al.* 2010) also utilised a map to show participants the geographic area which had been defined as the local economy.

The maps produced by Lobley *et al.* (2009a) and Mills *et al.* (2010) are examples of the use of *isochrones* or geographical drivetime polygons. An isochrone is a line on a map connecting points of the same time. In drivetime analysis, the line connects points of equal travel time. The 30 minute drivetime maps were created using Microsoft MapPoint 2011 software[4]. An example of the drivetime map can be seen in Figure 4.1. The blue boundary line connects all the places which are estimated to be within a 30 minute drive from the stated location, which in all cases was the converted building. A map of the county in which each building is located was not employed as it was assumed that participants understood the location of their building within its wider administrative area.

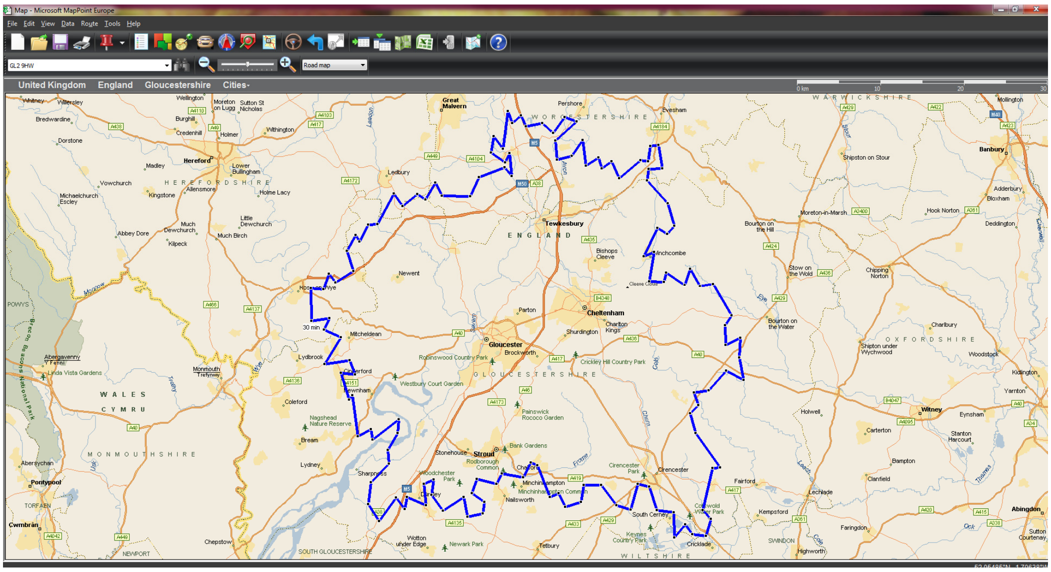

Figure 4.1: Illustrative 30 minute drivetime map for the Countryside and Community Research Institute

4.1.5 Interview Process

Participants were sent a summary of the questionnaire in advance of the interview so that they had some time to gather the relevant information. This was important as it was assumed that more accurate data would be obtained if the participant used their business records to answer the questions, rather than simply recalling or estimating the information. An actual copy of the questionnaire was not sent in advance as it may have intimidated participants, due to the complexity of some of the questions being asked.

Visits were made to the buildings to conduct interviews with the main decision maker for the conversion works and with the main user of the converted buildings. Interviews were also conducted with any willing employees who worked in the building and lived within the 30 minute drivetime boundary. The interviews were digitally recorded so that the

[4] The drivetime feature in MapPoint enables the user to construct geographical drivetime polygons for a specified point on a map.

information in the questionnaires could later be checked for accuracy. Photographs were taken of the buildings as well. The names and contact details of local contractors and suppliers involved in the conversion works and in the new use of the buildings were obtained. These firms were then invited to participate in the research. Initial contact was made via letter or email, with follow-up contact made by telephone with non-respondents one week and then three weeks after the initial contact (as advised by De Vaus (2002)). Ideally, all participants should have been interviewed face-to-face, but some were interviewed by telephone as the research time and resources could not facilitate visiting all of the firms in person. When interviewing the relevant individuals, permission was sought to ask all the employees who lived within the 30 minute drive time boundary to complete the household expenditure questionnaire.

4.1.6 Pre-testing and pilot work

Pilot work began on the 21st March 2011 to test the methodology and address any logistical difficulties. Four buildings were selected, two of which the National Trust had converted for its own use (Home Farm and the Sawmill at Tyntesfield) and two that had been converted by National Trust tenants (Sandy Hill Farm and Stones Farm at Sherborne, Gloucestershire). These pilot study buildings were identified in the same manner as the buildings in the main research and the criteria for pilot selection were accessibility (to better allow multiple visits if necessary) and whether the conversion and re-use project had been managed by the National Trust, or by a tenant (it was desirable to pilot the questionnaires with both cases). Conversion works and building user interviews were conducted for all four buildings. Response rates were 50% (5 out of 10) for contractors and 33% (3 out of 9) for suppliers across the four buildings. In addition, there were 17 household expenditure surveys completed.

4.1.7 Data Collection Issues

A number of challenges arose from piloting the data collection process, the first of which was how best to prepare the participants for the interview. The complex nature of the survey instrument and the sensitive questions being asked, meant that participants were likely to find the interview process easier if they had thought about their responses in advance, or had their financial records to hand during the interview. Despite receiving advanced notice, some participants were not prepared for the interview and as a result, they either gave crude estimations or they asked if they could take a copy of the expenditure table to fill out and return later. In the latter case, the result was often that the participant could not find time to complete the table. Furthermore, with regard to the expenditure tables, it was noted that participants generally found it easier to give figures in pounds for their expenditure rather than calculating expenditure as either a percentage of turnover or of total expenditure. The LM3 models, as will be explained later in this chapter, require the expenditure figures to be stated as percentages of total expenditure but it was straightforward enough to convert the participants' responses to the required percentage figures when checking through the survey after the interview.

A particular issue for the tenants who participated was the role of their landlord, the National Trust, in the research. The main concern for the tenants was the possibility of their sensitive business information being used to aid the National Trust in rent reviews. Despite assurances of confidentiality and the explanation that the data was being gathered for a doctoral research degree, it was noted that some participants remained suspicious about what data the National Trust could access. However, in most interviews the required information was given despite the participant voicing their concerns over its potential use.

The boundary chosen to represent the local economy was always likely to be questioned given the debates in the literature over the meaning of 'local'. Although the chosen boundary was generally accepted by participants, some still felt the need to explain what local meant to them in their situation. Some National Trust staff wanted to emphasise how they source from within their National Trust region and an architect stated that often construction materials and services are purchased from across the country, thereby making the motorway network significant. The same architect also made reference to hubs for particular materials and skills, for example Southampton is a skills hub for metalwork. Due to the ambiguous nature of what is meant by 'local', the selected boundary did not satisfy everyone, but a second boundary (county) was included in the main study to account for the National Trust staff who considered their region to be local. The National Trust regions were deemed too large to be used as single boundaries of the local economy.

The employee household surveys also proved challenging. Accessing employees frequently required the use of a gatekeeper in the firm and this individual often refused access to their employees, citing reasons of privacy and confidentiality. In cases where employees could be accessed, they either declined to participate or they were too busy to complete the survey immediately. In the latter case, surveys were given to employees to complete and return either in paper or electronic form, but very few were returned. It is understandable that participants found the household survey intrusive and difficult to complete. It was therefore important that in the main study, the continued reassurance of confidentiality and offers of assistance to complete the survey were provided.

Finally, the pilot data collection process highlighted some elements of the survey instruments that required review. The contractor and supplier surveys focused on business expenditure in relation to work on traditional rural working buildings, but in many instances this kind of work was only a small part of the overall client base. Only small percentages of the businesses expenditure were for this type of work, which made it difficult for participants to break down their business expenditure as required by the expenditure table. In some cases, work on historic buildings and work for the National Trust in general were relatively large parts of the business base. Therefore, it was deemed to be helpful for participants if the contribution of work on historic buildings to the business in general was discussed first, before focusing on traditional rural working buildings.

4.1.8 The main surveys

Buildings

The main case studies commenced on 20th July 2011. The last site visit was made on 14th December 2011 and the contractor and supplier interviews were completed by 2nd March 2012. The search for 30 case studies yielded data for 5 conversion projects, 8 uses and 17 cases in which data was collected for both conversion and re-use. The buildings were a mix of those used by the National Trust for its own purposes (in-hand) and those let for use by a tenant. Table 4.3 provides a more detailed breakdown of the data collected from the buildings.

Data collected for	**NT in-hand or let**	
	In-hand	**Let**
Conversion	5	0
Re-use	3	5
Both	9	8
Total	**17**	**13**

Table 4.3: Breakdown of data collection for the buildings

The 30 buildings were spread across England and each of the National Trust's six English regions were represented, as shown in Table 4.4.

National Trust region	**Number of buildings**	**Percentage**
East of England	3	10%
Midlands	6	20%
North West	3	10%
South East	10	33%
South West	5	17%
Yorkshire & North East	3	10%
Total	**30**	**100%**

Table 4.4: Breakdown of the number of buildings per National Trust region

Contractors and suppliers

Each conversion works and building re-use interview produced a list of associated contractors and suppliers. These businesses were asked to participate in the research and Table 4.5 presents the breakdown of willing participants. Overall, a 25% response rate was achieved for the contractors and suppliers with the same number of each being willing to participate.

	Population	**Willing to participate**	**Percentage**
Contractors	45	11	24%
Suppliers	44	11	25%
Total	**89**	**22**	**25%**

Table 4.5: Breakdown of the contractor and supplier participant numbers

Household survey

Household expenditure surveys were completed by National Trust staff and tenants, the contractors and the suppliers involved in the conversion and the re-use of the buildings. The breakdown for all the household survey responses is provided by Table 4.6 and it shows that National Trust staff and tenants were more willing to answer the household expenditure questions. The difficulty with obtaining household expenditure responses from contractors and suppliers was that while the individual being interviewed was usually willing to discuss their household expenditure, they often did not permit the distribution of household expenditure surveys to their employees. Therefore, the householder sample is biased towards managerial staff. The householder response rate was 17% (20 out of 117) and 15% (55 out of 356) for the conversion works and building use respectively.

Respondent	**Conversion works**	**Building use**	**Total number**	**Total Percentage**
National Trust staff	4	28	32	43%
Tenant	3	17	20	27%
Contractor	11	0	11	15%
Supplier	2	10	12	16%
Total	**20**	**55**	**75**	**100%**

Table 4.6: Breakdown of household survey responses

4.2 Testing the data for reliability and validity

As Fowler (2009) explains, reliability refers to the consistency of a measure and to the likelihood of obtaining the same result again if the measure were repeated. Validity, on the other hand, informs whether the question actually measures what it is designed to measure. The process of design and piloting aimed to ensure reliability and validity. However, it was important to reconsider this following collection of the main data.

4.2.1 Response bias

The sample availability and data collection intensity and expense meant that the sample could not be generalised to the wider population of traditional rural working buildings. It was therefore not necessary to test how representative the sample was of the wider population. However, with regard to response rates the sample compares favourably to previous LM3 studies such as that by Thatcher and Sharp (2008).

4.2.2 Validation

Given the relative complexity of the questionnaires, further checks were required to determine the validity of the data collected. This could be achieved through a comparison with a measure of the same variable from another source (Fink 2003). For each structured interview regarding the conversion and use of the buildings, it was noted whether the participant was recalling/estimating the data or obtaining it directly from business records. Ideally, all participants would have been prepared to give information from business records, but in some cases participants did not have the time to consult their records either before, or during the interview. Therefore, it was important to analyse any differences between the data that were derived from business records and the data that were simply recalled or estimated. This approach to validation is similar to what Fink (2003) describes as *concurrent validity*, which requires a comparison with another source for the same variable that is already considered valid. While it is not assumed that the business records are completely accurate, it is likely that they are more accurate than the data gathered through participant recall or estimation.

From the 22 conversion works interviews, 15 (68%) participants obtained the data from business records. For the building re-use, 14 out of the 25 participants (56%) used their business records during their interview. Table 4.7 presents a comparison between the information obtained from business records and that obtained from participant recall or estimation. For the conversion works, there is an underestimation of the mean proportion of total expenditure within the local economy. However, it is evident that there was an overestimation of local expenditure for the building re-use.

The proportion of expenditure which is attributed to the two geographical areas denoted as the local economy is one of the main dependent variables of interest, designed to achieve the aims of the research. It was important therefore to test the significance of the difference between the data from business records and the data which was estimated or recalled. A two-sample Student's t-test assuming equal variances using a pooled estimate of the variance was performed and the results are presented in Table 4.8. Equal variances were assumed because in all cases the results of the F-test (Levene's Test) indicated that the variances were not significantly different, as the p-values were all greater than or equal to 0.05.

Conversion works expenditure within the 30 minute drivetime area				
	n	**Minimum (%)**	**Maximum (%)**	**Mean (%)**
Records	15	0.00	100.00	60.94
Estimate/recall	7	0.00	100.00	56.17
Building re-use expenditure within the 30 minute drivetime area				
	n	**Minimum (%)**	**Maximum (%)**	**Mean (%)**
Records	14	2.00	77.00	36.43
Estimate/recall	11	0.00	100.00	60.40
Conversion works expenditure within the County				
	n	**Minimum (%)**	**Maximum (%)**	**Mean (%)**
Records	15	0.00	100.00	68.70
Estimate/recall	7	0.00	100.00	58.33
Building re-use expenditure within the County				
	n	**Minimum (%)**	**Maximum (%)**	**Mean (%)**
Records	14	8.00	77.00	45.21
Estimate/recall	11	0.00	100.00	60.40

Table 4.7: Comparison of the expenditure obtained from business records and participant recall/estimation: given by proportion of total expenditure

	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	**Sig.**	**df**	**Mean Difference**	**Sig. (2-tailed)**
Conversion works (30 minute drivetime area)	0.13	0.73	18.00	4.77	0.82
Conversion works (County)	0.11	0.74	18.00	10.37	0.62
Building re-use (30 minute drivetime area)	0.89	0.36	22.00	-23.97	0.03
Building re-use (County)	1.17	0.29	22.00	-15.19	0.15

Table 4.8: Independent Samples Test of the local expenditure data obtained from records and recall/estimation

The mean proportion of recorded conversion works expenditure within the 30 minute drivetime area was not significantly different from the recalled/estimated conversion works expenditure within the 30 minute drivetime area at the 95% confidence level, as evidenced by the *p*-value for the equal variances *t*-test being greater than 0.05. The same is true for the recorded and estimated conversion works expenditure within the county. There was also no significant difference at the 95% confidence level between the mean proportion of recorded building re-use expenditure and the mean proportion of recalled/estimated building re-use expenditure within the county. However, a significant difference did arise for the building re-use expenditure within the 30 minute drivetime area. The *p*-value of 0.03 for the equal variances *t*-test indicates a significant difference at the 95% confidence level, but it is important to note that *p*-values are primarily used where there is a random sample from a larger population than there is here. As the sample is not known to be representative of the wider population, it is not a concern if some of the data is invalid for making inferences about the wider population. The purpose of the *t*-test here was to examine the significance of the observed difference between the data from records and the data that was recalled/estimated. The significant difference in the case of the building re-use expenditure within the 30 minute drivetime area should be noted when interpreting the results. 44% (11) of the building users provided expenditure data, which is significantly different to that provided by the remaining 56% (15) of the building users for the 30 minute drivetime area. As the data from records and that which is recalled/estimated are collated to calculate the income and employment multipliers, it must be borne in mind that the difference may not be diluted, thereby leaving the multipliers open to artificial inflation.

4.3 LM3 Modeling

Given the low response rates from the contractors, suppliers and householders, it would have been impossible to produce an LM3 model for each of the 30 buildings without incorporating an element of estimation. It was therefore decided that the buildings would be grouped into categories, according to various characteristics, with LM3 models produced for each category. As each category would contain aggregated data from a number of buildings, there was more primary data for each LM3 model. This led to a total of 26 LM3 models comprising 12 conversion works models and 14 building re-use models. Furthermore, the three rounds of expenditure from the conversion works and building re-use cover the direct, indirect and induced expenditure effects. The direct, indirect and induced employment effects were also modelled.

4.3.1 Conversion works models

A breakdown of the 12 conversion works LM3 models is presented in Table 4.9. The categories were chosen following the descriptive analysis of the data (see chapter 5) and the aim was to ensure that there were enough buildings within each category to give sufficient data for the LM3 models. Table 4.10 shows which case studies were utilised in each model. The groupings are therefore not independent as each case study is used in more than one model. The selection of models within the building type and Standard Industrial Classification (SIC) class categories was guided by sample size. The designation and tenure categories were a straightforward split and the building size category was split according to the median gross internal floor area. The designation category is a proxy for historical significance and it facilitates a link between intrinsic value and instrumental value in the empirical work. The most common characteristics were:

- Other building type
- Floor area less than $464m^2$
- Listed buildings
- Accommodation and food services SIC class
- In-hand buildings

Model category	Number of models	Models within category
Building type	3	Animal housing, crop storage & processing, other
Building size	2	< $464m^2$, > $464m^2$
Designation	2	Listed, Unlisted
SIC class (which building is being converted for)	3	Accommodation and food services, manufacturing, other
Tenure	2	In-hand, let
Total	**12**	

Table 4.9 Conversion works models

Model	Case studies
Animal housing	Brompton Farm, Cats Abbey, Red House Farm, Hardwick stable block, Nostell Priory stable block, Polesden Lacey, Morden Hall stable block.
Crop storage and processing	Sandy Hill Farm, Big Tree Farm, Oast House Barn, Sheringham Park.
Other building type	Tyntesfield Home Farm, Tyntesfield Sawmill, Stowe New Inn, Old Laundry Cottages, Kennels, Westley Bottom, Coach House, How Hill Cottages, Widdop Barn, Morden Hall Snuff Mill.
Floor area $<464m^2$	Tyntesfield Sawmill, Sandy Hill Farm, Brompton Farm, Red House Farm, Big Tree Farm, Old Laundry Cottages, Kennels, Oast House Barn, Coach House, Widdop Barn, Morden Hall Snuff Mill, Morden Hall stable block, Sheringham Park.
Floor area $>464m^2$	Tyntesfield Home Farm, Cats Abbey, Stowe New Inn, Hardwick stable block, Westley Bottom, How Hill Cottages, Nostell Priory stable block, Polesden Lacey.
Listed	Tyntesfield Home Farm, Tyntesfield Sawmill, Sandy Hill Farm, Cats Abbey, Stowe New Inn, Old Laundry Cottages, Hardwick stable block, Oast House Barn, Coach House, Nostell Priory stable block, Widdop Barn, Polesden Lacey, Morden Hall Snuff Mill, Sheringham Park.
Unlisted	Brompton Farm, Red House Farm, Big Tree Farm, Kennels, Westley Bottom, How Hill Cottages, Morden Hall stable block.
Accommodation and food services	Tyntesfield Home Farm, Cats Abbey, Stowe New Inn, Red House Farm, Hardwick stable block, Sheringham Park, How Hill Cottages, Nostell Priory stable block, Widdop Barn, Polesden Lacey.
Manufacturing	Sandy Hill Farm, Big Tree Farm, Kennels, Oast House Barn.
Other SIC class	Tyntesfield Sawmill, Brompton Farm, Old Laundry Cottages, Westley Bottom, Coach House, Morden Hall Snuff Mill, Morden Hall stable block.
In-hand	Tyntesfield Home Farm, Tyntesfield Sawmill, Stowe New Inn, Old Laundry Cottages, Hardwick stable block, Westley Bottom, Coach House, How Hill Cottages, Nostell Priory stable block, Widdop Barn, Polesden Lacey, Morden Hall Snuff Mill, Morden Hall stable block, Sheringham Park.
Let	Sandy Hill Farm, Brompton Farm, Cats Abbey, Red House Farm, Big Tree Farm, Kennels, Oast House Barn.

Table 4.10 Case studies utilised by each conversion works model

LM3 models focus on the first three rounds of expenditure. Table 4.11 provides further information about what each round comprises of for the conversion works. The table also shows the corresponding income and employment effect for the economic activity in each round.

Round	Activity	Effect
1	Grants plus contribution from National Trust or tenant	Direct
2	Expenditure on contractors and materials	Indirect
3	Expenditure made by contractors and suppliers	Indirect
3	Household expenditure	Induced

Table 4.11 Rounds of expenditure and associated effects for the conversion works

Conversion works income effect model

All the LM3 modelling was carried out in Microsoft Excel and the template for this can be seen in Appendix 13. The diagram in Figure 4.2 illustrates how the income effect model was constructed for the 30 minute drivetime area and similar calculations were performed for the expenditure occurring within the county. The direct effects are the initial investment into the economy and for the conversion works comprise the sum of any grants received plus any contributions from the National Trust and/or tenants. An important consideration when calculating the direct effect was additionality. Additionality is the extent to which something happens as a result of an intervention and that would not have occurred in the absence of the intervention (English Partnerships 2004). The grant funding which many of the conversion works projects received is considered an important factor in influencing how much work took place. It was therefore necessary to establish whether any capital works expenditure would have taken place within the local economy if grants had not been available. All grants are considered additional for the conversion works, as they would not have been applied for otherwise. Additionality was accounted for by calculating the proportion of the National Trust/tenant’s own expenditure which occurred exclusively due to the grant-aided conversion works. The formula employed was:

$$\text{own expenditure}^* \left(1 - \left(\frac{\text{deadweight}}{\text{own expenditure}} \right) \right)$$

The formula incorporates ‘deadweight’, which refers to what would have happened had a particular activity not taken place. In this case, the deadweight is the expenditure that would have taken place regardless of any grant support. The result of this equation was added to the total amount from grants to give the total direct effect or injection.

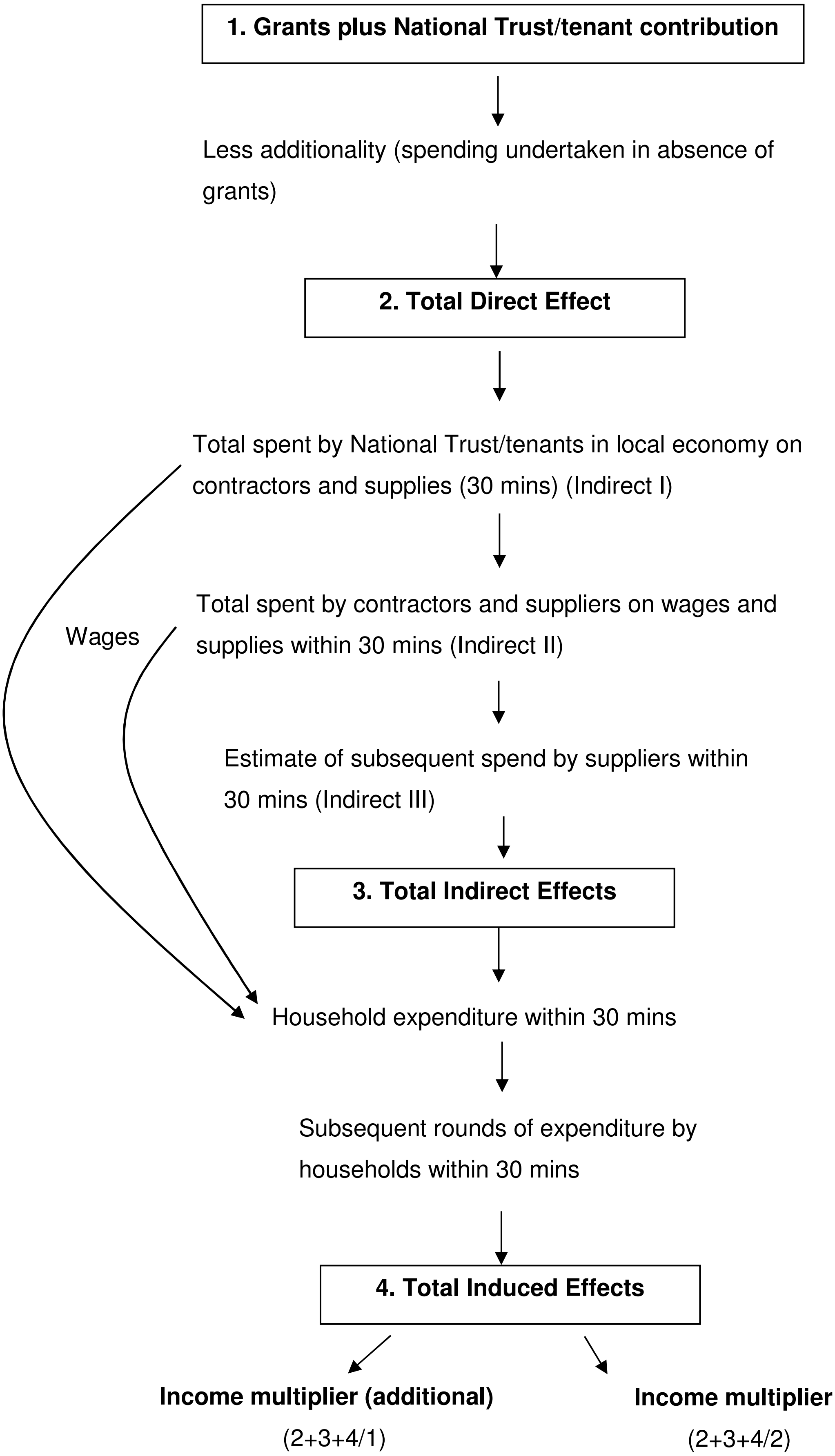

Figure 4.2: Conversion works income effect LM3

The indirect effects are the subsequent spending resulting from the original investment and they comprised three parts: Indirect I, Indirect II and Indirect III. Figures for the expenditure within the 30 minute drivetime area and county were calculated for all three elements. The county figures include the 30 minute drivetime area figures, as there was not enough data to isolate the county figures from the 30 minute drivetime area. In other words, the situation in Figure 4.3 is assumed to always be true even if the reality is as shown in Figure 4.4.

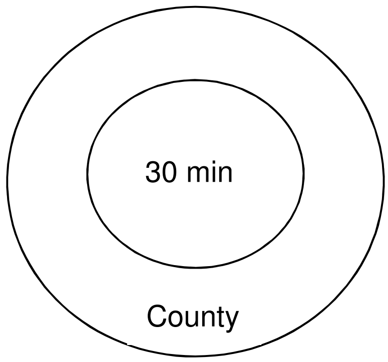

Figure 4.3: 30 minute drivetime area is fully within the county

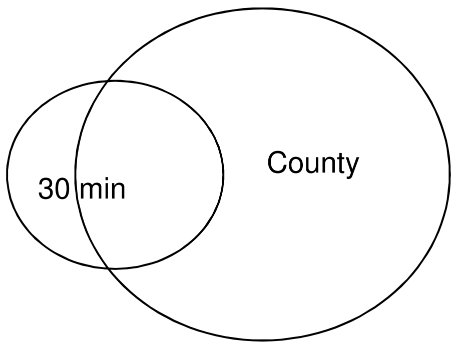

Figure 4.4: Part of the 30 minute drivetime area falls out with the county

The expenditure data was split according to the model categories and the indirect effects were calculated using the mean proportion of expenditure within each category. Indirect effects I were calculated using the mean proportion of expenditure by National Trust staff and tenants on contractors and suppliers within the 30 minute drivetime and county boundaries. Aside from staff wages, the Indirect I expenditure flowed through to the Indirect effects II calculation. The staff wages were not carried through because they were paid to householders and so should instead be carried into the induced effects. The Indirect effects II calculation used the mean proportion of expenditure by contractors and suppliers on staff wages and suppliers within the 30 minute drivetime and county boundaries. Again, aside from staff wages the figures for Indirect II are carried through to Indirect III which includes an estimation of the subsequent expenditure, beyond the third round, by suppliers within the two boundaries. The formula for this estimation, which was devised by NEF (Boyde 2001), is:

$$\text{Indirect II} * \left(\frac{1}{1-\text{X}}\right) - 1$$

Where: X = mean proportion of local spend by suppliers

The estimated subsequent expenditure is added to the totals for Indirect I and II to yield the total Indirect effects. The Induced effects are the result of the staff wages from Indirect I and II and they were calculated using the mean proportion of household expenditure on food, clothing, durables and services within the 30 minute drivetime and county boundaries. Expenditure on these items is considered to be the magnitude of the households' disposable income that is available after paying taxes, bills and servicing debts. Expenditure figures for England from the Department for Environment, Food and Rural Affairs (Defra) Rural Digest 2012 (Defra 2012), showed the proportion of disposable income which was spent on each item. In total, 44% of household income was assumed to be disposable. The subsequent rounds of expenditure were estimated using the same equation as Indirect III which gave the total Induced effects[5].

Summing the direct, indirect and induced effects gives the total income effects and from this two income multipliers can be derived. The income multiplier does not take the additionality effect into account, which makes it larger than the income multiplier (additional). The formula is:

$$\frac{\text{Total Direct Effect} + \text{Total Indirect Effect} + \text{Total Induced effect}}{\text{Total Direct Effect}}$$

[5] It should be noted that a significant proportion of household shopping is likely to be carried out in supermarkets, thus leading to potentially greater leakages of income further down the chain. This needs to be borne in mind when interpreting the present findings.

The income multiplier (additional) accounts for additionality in the same manner as Courtney *et al.* (2013) and Mills *et al.* (2010). The non-additional injection is effectively excluded by including it with the direct injection used to calculate the multiplier. In other words, the effect of the non-additional income in the numerator is cancelled out by including it in the denominator. This is undertaken because the objective is to calculate a multiplier, rather than an income effect per pound sterling injection. The income multipliers presented in chapter 5 onwards are those which account for additionality. The formula is:

$$\frac{\text{Total Direct Effects} + \text{Total Indirect Effects} + \text{Total Induced Effects}}{\text{Total grants} + \text{own contribution}}$$

The following is a worked example of the conversion works income multiplier calculation for the 30 minute drivetime area and the data is that for the overall conversion works income:

1. Direct income effect

Total grant injection	£6,931,499
Plus total own business contribution	£16,942,297
Less additionality effect	£2,433,986
Equals total direct effect	£21,439,810

2. Indirect income effect

Expenditure on contractors and supplies	£9,697,226
Plus contractors' and suppliers' expenditure	£1,815,581
Plus estimate of subsequent expenditure	£57,832
Equals total indirect effect	£11,570,639

3. Induced income effect

Household expenditure	£506,436
Plus estimate of subsequent expenditure	£1,719,657
Equals total induced effect	£2,226,093

$$\text{Income effect multiplier (additional)} = \frac{\text{direct effect + indirect effect + induced effect}}{\text{Grant injection + own contribution}}$$

$$= \frac{£21{,}439{,}810 + £11{,}570{,}639 + £2{,}226{,}093}{£6{,}931{,}499 + £16{,}942{,}297}$$

$$= 1.48$$

Conversion works employment effect model

The employment effects for the conversion works were estimated using information from the survey about additional employment resulting from the conversion works. Direct, indirect and induced employment effects were calculated with this survey data plus data from the income effect models and employment coefficients derived from previous economic impact studies. Based on the coefficients used in previous studies by Courtney *et al.* (2013), Lobley *et al.* (2009a), Courtney *et al.* (2007a) and Edwards *et al.* (2005), the following assumptions were made:

- 1 Full Time Equivalent (FTE) equates to 1.14 actual jobs.
- Indirect FTE: 1 FTE job is created for every £100,000 expenditure on second and third round supplies (throughout the duration of the conversion works).
- Induced jobs: an induced employment coefficient of 0.1 was assumed meaning that an additional induced job will arise with every 10 jobs supported either directly or indirectly at the local level.

The employment effect model is illustrated in Figure 4.5. The total population of FTEs is the total number of National Trust and tenant FTEs associated with the conversion works. The total non-additional FTEs equates to the total number of FTEs who would be employed regardless of the conversion works (i.e. accounting for displacement). Tenants are assumed to be additional FTEs on the basis that their job of converting the building only exists because the building is being converted. The National Trust staff who managed the in-hand conversion works were generally not considered additional FTEs as project-managing these particular conversions was not their only role within the National Trust. However, there were a few cases in which the project manager had been specifically recruited for a particular conversion project. In such cases the job was counted as additional.

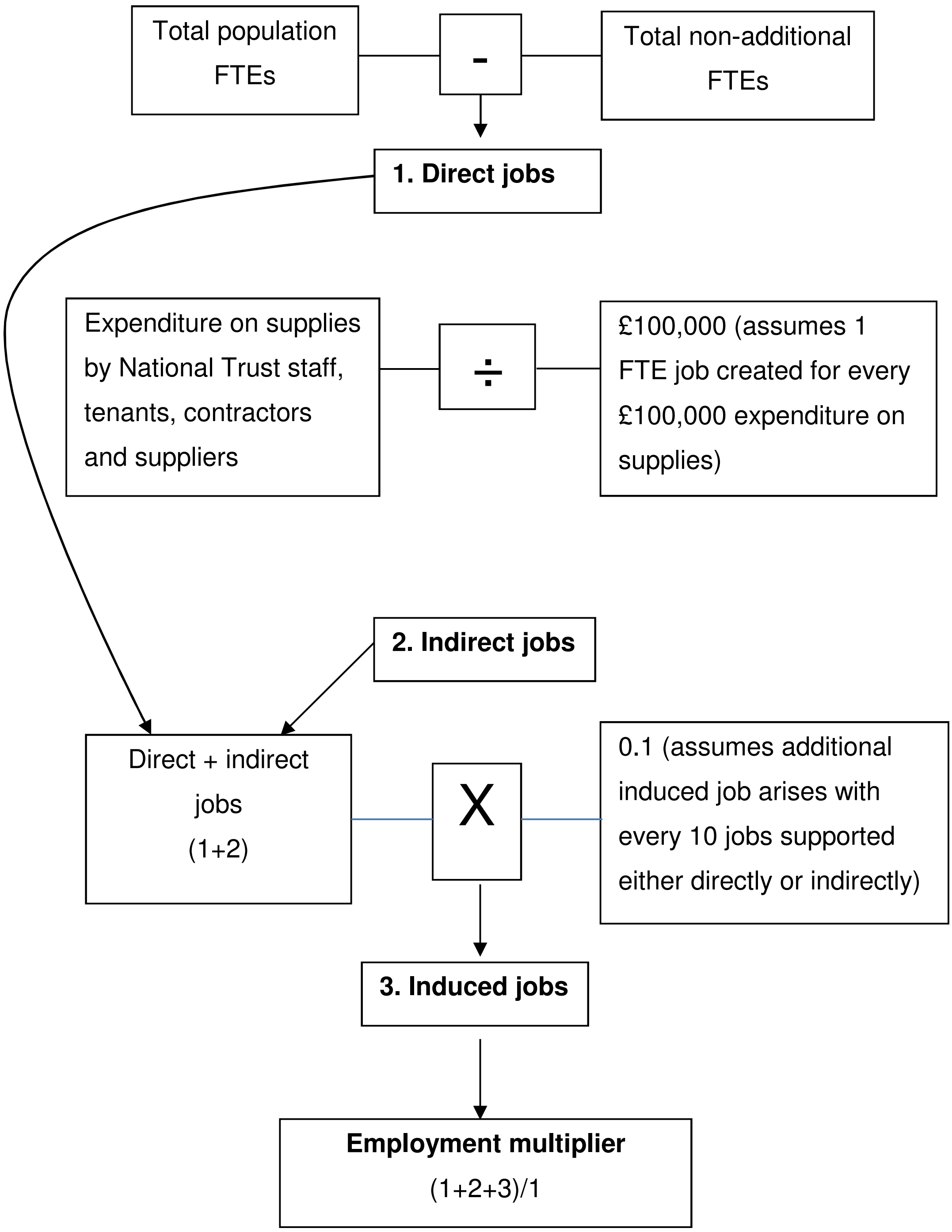

Figure 4.5: Employment effect model for conversion works

Employment multipliers were calculated for the 30 minute drivetime area and for the county. County FTEs were assumed to include all 30 minute drivetime area FTEs, just as with the county expenditure in the income model.

The following is a worked example of the conversion works employment multiplier calculation for the 30 minute drivetime area and the data is that for the overall conversion works employment impact:

1. Direct employment effect

   Total FTEs 22.81
   Less non-additional FTEs 14.04
   Equals direct FTEs 8.77

2. Indirect employment effect

   Total direct and indirect expenditure on supplies £453,160
   Divided by 100,000
   Equals indirect FTEs 4.53

3. Induced employment effect

   Total direct and indirect FTEs 13.3
   Multiplied by employment coefficient of 0.1
   Equals induced FTEs 1.33

$$\text{Employment effect multiplier} = \frac{\text{direct FTEs} + \text{indirect FTEs} + \text{induced FTEs}}{\text{Direct FTEs}}$$

$$= \frac{8.77 + 4.53 + 1.33}{8.77}$$

$$= 1.67$$

4.3.2 Building re-use models

Like the conversion works models, the building re-use models were split into categories following the descriptive analysis of the survey data. There were 14 building re-use models created and the categories are presented in Table 4.12. As each case study is utilised in more than one model, the comparisons between the models are not independent. The building type, SIC class and tenure categories are the same as the conversion works models. The other three building re-use categories were based on the characteristics of the businesses re-using the converted buildings. The categories of length of occupancy of the building and business size (by turnover) were split around the median as the mean was skewed (see Chapter 5). The indigeneity category is particularly interesting, because it shows whether the local economic impact differs when a person who is from the local area is re-using the building compared with a person who is not originally from the local area. Table 4.13 shows the case studies that are utilised by each model. The most common characteristics were:

- Other building type
- Manufacturing and other SIC classes (same number of case studies in both groups)
- Let buildings
- Buildings occupied for less than 5 years
- Businesses with turnover less than £75,000
- Non-indigenous occupiers

Model category	**Number of models**	**Models within category**
Building type	3	Animal housing, crop storage & processing, other
Length of occupancy	2	< 5 years, > 5 years
Business size (by turnover)	2	< £75,000, > £75,000
Indigeneity	2	Local, non-local
SIC class (new use)	3	Accommodation and food services, manufacturing, other
Tenure	2	In-hand, let
Total	**14**	

Table 4.12: Building re-use models

Model	Case studies
Animal housing	Brompton Farm, Hills Yard, Red House Farm, Maypole Brewery, Sheringham Park
Crop storage and processing	Sandy Hill Farm, Cats Abbey, Big Tree Farm, Oast House Barn
Other building type	Tyntesfield Home Farm, Tyntesfield Sawmill, Coleshill Stable Yard, Coleshill Carpenters Yard, Old Slaughter House, Dunham Massey Home Farm, Old Laundry Cottages, Kennels, Westley Bottom, Coach House, How Hill Cottages, Widdop Barn, Morden Hall Snuff Mill, Horsey Cottages
Occupancy <5 years	Tyntesfield Home Farm, Tyntesfield Sawmill, Sandy Hill Farm, Brompton Farm, Cats Abbey, Old Slaughter House, Big Tree Farm, Kennels, Oast House Barn, Coach House, How Hill Cottages, Morden Hall Snuff Mill
Occupancy >5 years	Coleshill Stable Yard, Coleshill Carpenters Yard, Hills Yard, Red House Farm, Dunham Massey Home Farm, Old Laundry Cottages, Maypole Brewery, Westley Bottom, Widdop Barn, Sheringham Park, Horsey Cottages
Turnover < £75,000	Tyntesfield Sawmill, Coleshill Stable Yard, Coleshill Carpenters Yard, Old Slaughter House, Dunham Massey Home Farm, Kennels, Oast House Barn, Coach House, Widdop Barn, Morden Hall Snuff Mill, Sheringham Park, Horsey Cottages
Turnover > £75,000	Tyntesfield Home Farm, Sandy Hill Farm, Hills Yard, Brompton Farm, Cats Abbey, Red House Farm, Big Tree Farm, Old Laundry Cottages, Maypole Brewery, Westley Bottom, How Hill Cottages
User is local	Tyntesfield Sawmill, Coleshill Stable Yard, Coleshill Carpenters Yard, Old Slaughter House, Red House Farm, Big Tree Farm, Kennels, How Hill Cottages, Horsey Cottages
User is non-local	Tyntesfield Home Farm, Sandy Hill Farm, Brompton Farm, Cats Abbey, Hills Yard, Dunham Massey Home Farm, Old Laundry Cottages, Maypole Brewery, Oast House Barn, Westley Bottom, Coach House, Widdop Barn, Morden Hall Snuff Mill, Sheringham Park

Table 4.13: Case studies utilised by each building re-use model

Model	Case studies
Accommodation and food services	Tyntesfield Home Farm, Cats Abbey, Red House Farm, How Hill Cottages, Widdop Barn, Sheringham Park, Horsey Cottages
Manufacturing	Sandy Hill Farm, Coleshill Stable Yard, Old Slaughter House, Hills Yard, Big Tree Farm, Maypole Brewery, Kennels, Oast House Barn
Other SIC class	Tyntesfield Sawmill, Brompton Farm, Coleshill Carpenters Yard, Dunham Massey Home Farm, Old Laundry Cottages, Westley Bottom, Coach House, Morden Hall Snuff Mill
In-hand	Tyntesfield Home Farm, Tyntesfield Sawmill, Dunham Massey Home Farm, Old Laundry Cottages, Westley Bottom, Coach House, How Hill Cottages, Widdop Barn, Morden Hall Snuff Mill, Sheringham Park, Horsey Cottages
Let	Sandy Hill Farm, Brompton Farm, Cats Abbey, Coleshill Stable Yard, Coleshill Carpenters Yard, Old Slaughter House, Hills Yard, Red House Farm, Big Tree Farm, Maypole Brewery, Kennels, Oast House Barn

Table 4.13 contd. Case studies utilised by each building re-use model

The building re-use models focus on the first three rounds of expenditure and the associated direct, indirect and induced effects of this expenditure. Table 4.14 shows what each round and effect relates to. When considering these effects, it is important to remember that unlike the conversion works, the re-use of the buildings is an ongoing process. Therefore the income and employment effects for the building re-use are potentially greater than those measured here, as this research only uses data from one financial year. The user of the building will continue to spend money and employ staff whereas the conversion works expenditure and employment ends with the completion of the works.

Round	Activity	Effect
1	Attributable turnover from building use	Direct
2	Expenditure on goods, services and labour	Indirect
3	Expenditure by suppliers[6]	Indirect
3	Household expenditure	Induced

Table 4.14: Rounds of expenditure and the associated effects for building re-use

Building re-use income effect model

The template for the model is given in Appendix 14 and Figure 4.6 illustrates the model. The calculations were performed for both the 30 minute drivetime area and the county boundaries and as for the conversion works modeling, the county boundary is assumed to contain all of the 30 minute drivetime area expenditure. The direct effect for the building re-use was the income arising from the activity taking place in the building which in most cases was business turnover. In cases were the activity did not generate a turnover a figure such as the activity's annual budget was used instead. An important consideration when calculating the direct effect is attribution. As noted by Steed and Nicholles (2011) many evaluation techniques do not include any attempt to calculate attribution. To not account for attribution, is to assume that the subject of the analysis is 100% responsible for the observed outcome, when in fact there are likely to be other contributing factors influencing the outcome. Attribution concerns the proportion of the outcome that is attributable to a particular activity (Nicholls *et al.* 2009). This means being aware that one particular activity may not be the only one contributing to the observed change. The turnover arising from the building users' activity would occur as a result of them re-using a building for their business activity. The attribution calculation is required to estimate the proportion of turnover that can be attributed to the activity taking place in a traditional rural working building, as opposed to any other type of building. It will never be possible to obtain a completely accurate assessment of attribution and so one must be aware of other contributing factors (Nicholls *et al.* 2009). In this case, one must be aware of, and account for, the possibility that the activity could have taken place in a different type of building.

[6] As so little was spent on contractors the Round 3 analysis will include only suppliers

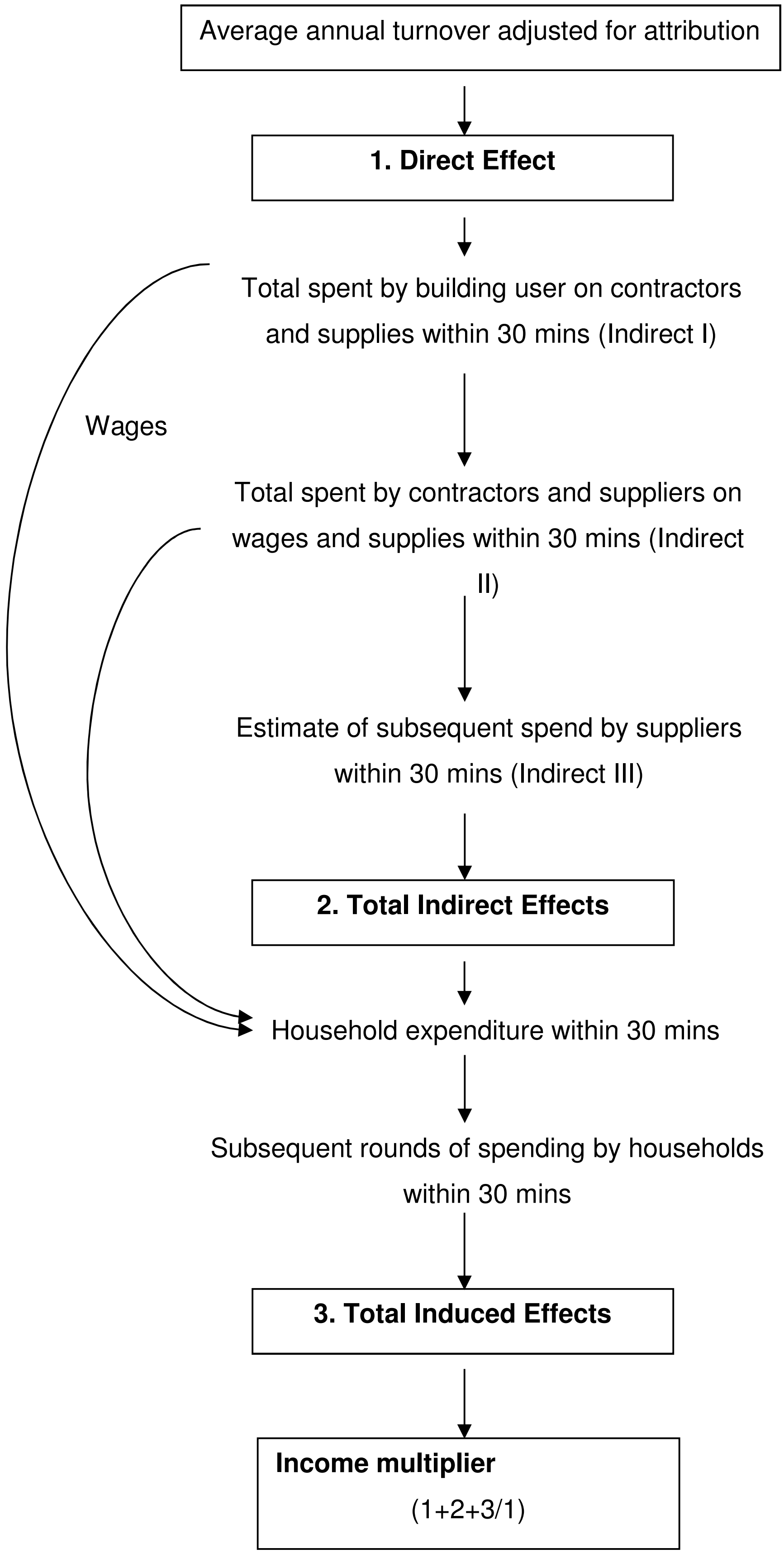

Figure 4.6: Income effect model for building re-use (30 minute drivetime area)

The attribution effect was accounted for using the guidance from Nicholls *et al.* (2009) and Steed and Nicholles (2011). They advise that questions for capturing the attribution effect need to be phrased appropriately and that both qualitative and quantitative questions can be used. Steed and Nicholles (2011) state that qualitative questions can aid understanding of how and why a certain level of attribution is achieved and so qualitative questions were used for the building users. It was also assumed that a quantitative question requiring building users to estimate the percentage of their turnover which is attributable to the building would be too hypothetical. Therefore, the attribution effect was captured through open questions, for example why the building users were using a traditional rural working building and how it impacted upon them.

Drawing on the guidance of Steed and Nicholles (2011), the building users were divided into 3 groups according to the answers given to the attribution questions. The groups are presented in Table 4.15. The proportions are conservative estimates based on the building users' qualitative responses to questions about their reasons for re-using a traditional rural working building and their perceived impacts of this. The 'high' attribution group largely consists of National Trust in-hand activities. A combination of National Trust policy (i.e. seeking to adapt existing buildings rather than build new ones) and the type of buildings which most often become redundant at the National Trust's rural sites, makes the use of alternative buildings highly unlikely. The attribution figure of 80% of turnover therefore reflects the fact that it is highly unlikely the activity would have taken place in another type of building.

Building users in the 'medium' and 'low' attribution categories had free choice with regard to the type of building they used for their business activity. The difference between them is that users in the 'medium' category specifically sought a traditional rural building for lifestyle reasons. Some users sought a traditional rural building because they prefer the characteristics of this building type, while other users sought a traditional rural building because they wanted a building that contributed to the branding of their product. Given that the use of a traditional rural building was through choice rather than necessity, the attribution figure is less than half that for the 'high' attribution category. Finally, the building users in the 'low' category were seeking the most appropriate building available at the time and they had no particular preference for building type or style. The attribution figure is therefore 0, because there was no requirement or choice to use a traditional rural working building. The total direct effect is calculated by multiplying the turnover by the relevant attribution percentage.

Attribution category	Proportion of turnover attributable	Reason for re-using traditional rural working building	n
High	80%	Use of other building types highly unlikely	13
Medium	30%	Could have used any building type but specifically sought rural vernacular	7
Low	0%	Could have used any building type and traditional rural was available at the time	5[7]

Table 4.15: Building re-use attribution categories

The indirect effects for the building re-use comprise three parts. Indirect effects I is calculated using the mean proportion of expenditure by the building user on contractors and supplies within the 30 minute drivetime and county areas. For all the indirect effects, the county expenditure is assumed to include the 30 minute drivetime expenditure. Aside from expenditure on wages, the Indirect I figures are carried into the indirect effects II calculation. The wages are carried into the induced effects calculation because they lead to household expenditure. Indirect effects II are calculated using the mean proportion of expenditure by the contractors and suppliers who receive income from the Indirect I expenditure. Again, aside from staff wages, the indirect II figures carry into the indirect III calculation. Indirect effects III are the result of the subsequent expenditure of suppliers beyond the third round of expenditure and the formula for estimating this is based on that used by Boyde (2001):

$$\text{Indirect effects II} * \left(\frac{1}{1-\text{X}}\right) - 1$$

Where: X = the mean proportion of local spend by suppliers

The total indirect effects are then calculated by summing Indirect effects I, II and III. The induced effects are the result of households spending their income from wages within the 30 minute drivetime and county areas and so the wages figures were pulled in from the Indirect effects I and II. The analysis focused on disposable income, which is spent on food, clothing, durables and services i.e. it does not include household bills, taxes, loans

[7] These buildings were subsequently excluded from the LM3 modelling exercise as their local economic effects cannot be attributed to the fact that the activity is taking place within a converted traditional rural working building.

and savings. The average proportion of expenditure on typical 'disposable income' items were taken from the Defra Rural Digest figures for England 2012 (Defra 2012). The subsequent rounds of household expenditure were estimated using a formula based on Courtney *et al*. (2013):

$$\text{Total household expenditure} * \left(\frac{1}{1 - \text{X}}\right) - 1$$

Where: X = mean proportion of local expenditure by householders

The total induced effects were derived by summing the household expenditure from round three and the subsequent rounds[8]. The income effect multiplier is then calculated as follows:

$$\frac{\text{total direct effect} + \text{total indirect effects} + \text{total induced effects}}{\text{total direct effect}}$$

The following is a worked example of the building re-use income multiplier calculation for the 30 minute drivetime area and the data is that for the overall building re-use impact:

1. Direct income effect

Business turnover	£5,338,617
Total attribution effect (sum of individual attribution effects)	£2,069,540
Total direct effect	£2,069,540

2. Indirect income effect

Expenditure on contractors and supplies	£651,698
Plus contractors' and suppliers' expenditure	£89,013
Plus estimate of subsequent expenditure	£6,513
Equals total indirect effect	£747,224

[8] It should be noted that a significant proportion of household shopping is likely to be carried out in supermarkets, thus leading to potentially greater leakages of income further down the chain. This needs to be borne in mind when interpreting the present findings.

3. Induced income effect

Household expenditure	£137,969
Plus estimate of subsequent expenditure	£359,217
Equals total induced effect	£497,186

$$\text{Income effect multiplier} = \frac{\text{direct effect + indirect effect + induced effect}}{\text{Direct effect}}$$

$$= \frac{£2{,}069{,}540 + £747{,}224 + £497{,}186}{£2{,}069{,}540}$$

$$= 1.60$$

Building use employment effect model

The employment effects for the building use were estimated using information from the survey about local employment resulting from the use of the buildings. Direct, indirect and induced employment effects were calculated with this survey data, plus data from the income effect models and employment coefficients derived from previous economic impact studies, as explained on page 128. The employment effect model is illustrated in Figure 4.7. The total reported FTEs is the total number of FTEs employed in the use of the buildings.

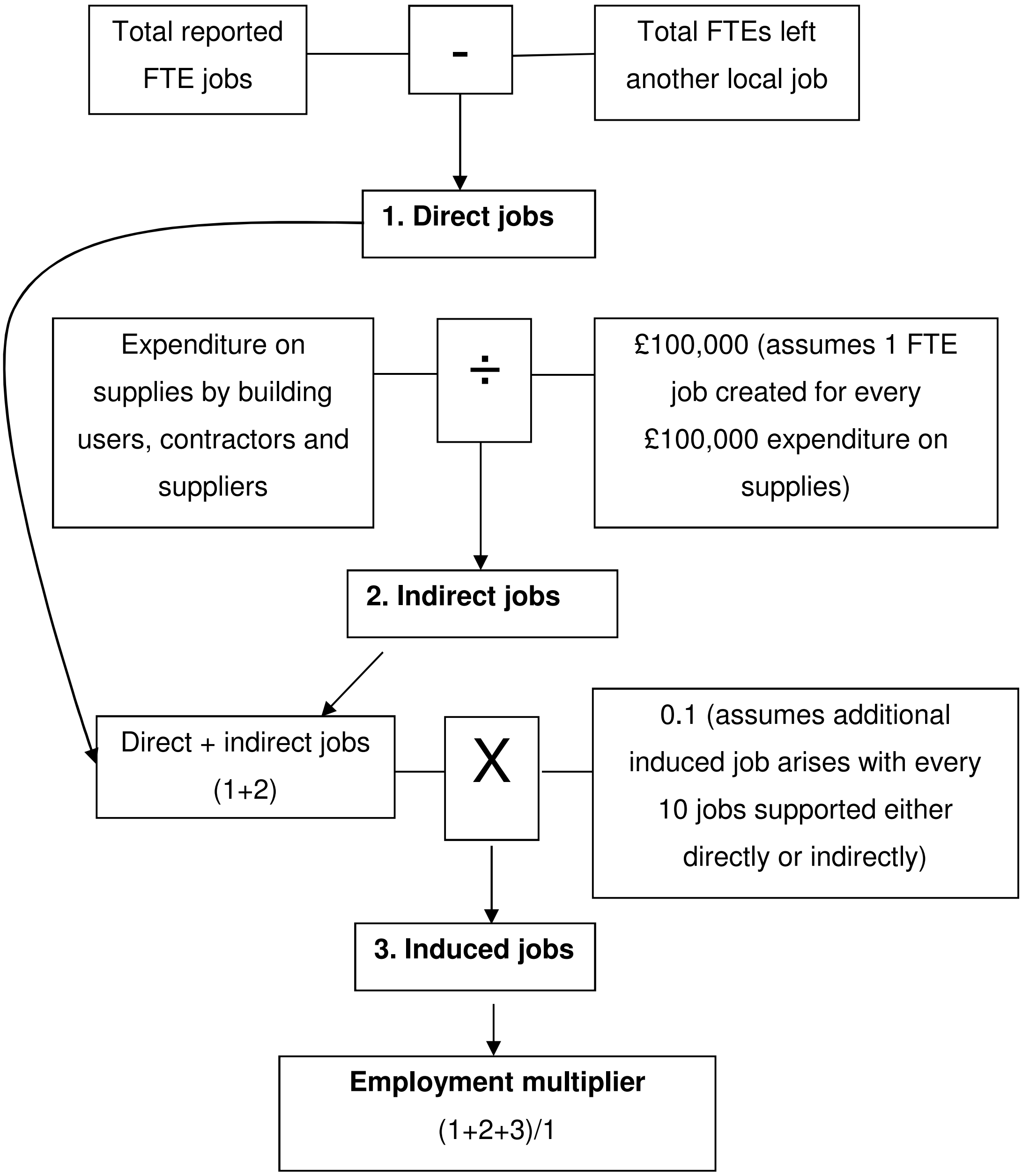

Figure 4.7: Employment effects model for building re-use

When estimating the local employment effects, it was important to consider displacement. This is an assessment of how much of the outcome displaced other outcomes (Nicholls *et al.* 2009). In the present context, it is most likely to occur when an activity or sector takes market share or labour from other firms or organisations in an area. With regards to the building users, any employees who had left another job within the local area may have created a displacement effect. Building users were therefore asked to estimate how many employees had left jobs within the local boundaries. It is possible that the estimated number of job vacancies left by people coming to work for the building users were subsequently backfilled by other residents of the local area. If this happened, then the omitted FTEs could be considered to be additional. However, these vacancies could also have been backfilled by non-local people, or any backfilling by local residents could have displaced jobs further down the chain. It was therefore better to remain conservative and assume that building user jobs taken up by people previously employed in the local area were not additional jobs. A further reason to remain conservative is that the employment additionality measures used here do not take account of any potential wage effects resulting from increased demand for labour by the building users, which could also cause displacement effects. Therefore the Direct FTE jobs (for both the 30 minute drivetime area and county) were calculated by subtracting the total FTEs who had left other local jobs from the total reported FTEs. As with the income effects model, the county figures are assumed to include all 30 minute drivetime area figures.

The following is a worked example of the building re-use employment multiplier calculation for the 30 minute drivetime area and the data is that for the overall building re-use employment impact:

1. Direct employment effect

Total reported FTEs	250.66
Less total FTEs reported to have left another local job	<u>35.96</u>
Equals direct FTEs	<u>214.70</u>

2. Indirect employment effect

Total direct and indirect expenditure on supplies	£221.442
Divided by 100,000	
Equals indirect FTEs	<u>2.21</u>

3. Induced employment effect

Total direct and indirect FTEs	216.91
Multiplied by employment coefficient of 0.1	
Equals induced FTEs	21.69

$$\text{Employment effect multiplier} = \frac{\text{direct FTEs + indirect FTEs + induced FTEs}}{\text{Direct FTEs}}$$

$$= \frac{214.70 + 2.21 + 21.69}{214.70}$$

$$= 1.11$$

4.3.3 Sensitivity analysis

As demonstrated by Thatcher and Sharp (2008) and Lobley *et al*. (2009a), it is important to test the accuracy of LM3 models as they only provide an estimate of the local economic impact. Each round of expenditure is open to interpretation and so suitable margins of error must be applied to them. Thatcher and Sharp (2008) were advised by NEF to use figures of between 5-10% and Lobley *et al*. (2009a) developed this, with a lower and higher margin of error for each of the three rounds of spending. The difference in error margins for each round reflected the respective level of accuracy between the different rounds. The result was a range of LM3 indices, which is preferable to a single figure indicator that could be seen as misleadingly precise. Based on the approach used in these previous studies, the conversion works and building re-use models were adjusted using the following margins of error:

- Round 1: Lower margin of error 5% Higher margin of error 10%
- Round 2: Lower margin of error 7.5% Higher margin of error 15%
- Round 3: Lower margin of error 10% Higher margin of error 20%

This analysis was performed by adjusting the data for each round by the relevant percentage. The data could have been adjusted upwards, as well as downwards, but it was decided only to adjust downwards. This was because the data collection process made it more likely that any errors would lead to an inflated LM3 index. Some participants quickly estimated their expenditure figures, changing them when they did not quite add up. It is also likely that local expenditure flows were over-estimated, as a result of purchases in supermarkets and other large chain retailers. Therefore, adjusting the expenditure downwards should produce a better indicator of what is actually occurring. To illustrate this analysis the results for the overall conversion works and building use models are shown in Tables 4.16 and 4.17.

Margin of error for 30 minute drivetime				
	Income multiplier	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Original estimate	1.48	1.67	35.23	14.63
Lower margin of error	1.38	1.64	31.31	13.64
Higher margin of error	1.29	1.57	27.77	12.42
Margin of error for the county				
	Income multiplier	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Original estimate	1.83	1.84	43.7	16.18
Lower margin of error	1.55	1.79	35.21	14.94
Higher margin of error	1.41	1.71	30.21	13.47

Table 4.16: Sensitivity analysis for the overall conversion works model

The sensitivity analysis clearly demonstrates the impact of the reductions in each of the three rounds of expenditure within the models. For the conversion works, the higher margin reduces the income multipliers for the 30 minute drivetime and the county by 14% and 23% respectively. This means that the income generated is reduced by 22% for the 30 minute drivetime area and by 31% for the county. There is less of an impact on the employment multipliers, because the indirect and induced employment effects are driven to a greater extent by the spatial patterns of expenditure at the second, third and subsequent rounds of expenditure, as opposed to the magnitude of expenditure. With regards to building re-use, the higher margin reduces the income multiplier by 12.5% for the 30 minute drivetime and by 16% for the county. The income generated is reduced by 21% and by 25% for the 30 minute drivetime area and county respectively. There is no impact on the employment multiplier from the higher margin despite a 10% reduction in the number of total jobs created. This is further evidence that the employment multipliers are more driven by the spatial patterns of expenditure than magnitude of expenditure.

Margin of error for 30 minute drivetime				
	Income multiplier	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Original estimate	1.60	1.11	3.31	238.61
Lower margin of error	1.50	1.11	2.95	226.49
Higher margin of error	1.40	1.11	2.61	214.39
Margin of error for the county				
	Income multiplier	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Original estimate	1.73	1.11	3.58	238.92
Lower margin of error	1.59	1.11	3.12	226.76
Higher margin of error	1.46	1.11	2.72	214.62

Table 4.17: Sensitivity analysis for the overall building re-use model

The sensitivity analysis indicates that it is prudent to state the multipliers and economic impacts as falling within a range of possible magnitudes, rather than as single figures. The sensitivity analysis was applied to all of the conversion works and building re-use models. The original conversion works and building re-use multipliers can be seen in Appendices 15 and 16 respectively. In chapter 6, all of the multipliers are therefore presented in the form of ranges, as opposed to single figures. For the reasons suggested above, this provides a greater degree of confidence in the results.

4.4 Conclusion

This chapter has discussed the many decisions made in the design and execution of this study, from selecting an appropriate method for data collection, through to ensuring the robustness of the analytical methodology. It has also presented the results of exercises which tested the validity of the data obtained. Therefore, the information presented within should be borne in mind when examining the research findings in the following two chapters. Where appropriate, reference is made to the material presented here, and the implications of the methodological approach are discussed further in chapter seven.

CHAPTER 5

LOCAL ECONOMIC IMPACT OF CONVERTING AND RE-USING TRADITIONAL RURAL WORKING BUILDINGS: DESCRIPTIVE FINDINGS

5.0 Introduction

The purpose of this chapter is to begin to analyse the local economic impact arising from the conversion and re-use of traditional rural working buildings. The descriptive results from the conversion works, building re-use and household surveys are presented to summarise how the local economic impact might vary according to the characteristics of the buildings being converted and re-used. Throughout, emphasis is placed upon the economic impact within the 30 minute drivetime area as this is the key boundary of the local economy. This is most often given by the mean expenditure, although median figures are shown for cases where the mean has been skewed. The analysis of expenditure and other variables begins to build up a picture of the first-round economic impacts and provides a firm foundation for the analytical work in chapter six.

5.1 The buildings in the sample

This section focuses on the sample of buildings in the study. It examines
the characteristics of the buildings from which conversion works data was collected, as well as the characteristics of the buildings from which data on the re-use was collected. Three example case studies are presented for each to demonstrate the types of projects from which data was collected. These particular projects are considered exemplary by the National Trust and they are used to demonstrate best practice within the National Trust.

5.1.1 The buildings being converted

The completion dates of the conversion works range from 2001 through to works that were still in progress at the time of data collection in 2011. The buildings are located across England and Table 5.1 presents a breakdown of the buildings by county, designation and tenure. The majority of the buildings are listed and are kept in-hand, rather than being let, by the National Trust. The buildings have been grouped by original function, using the framework developed by English Heritage and the Countryside Agency

(2006), with the addition of the 'transport' group to allow the inclusion of coach houses and coaching inns. This breakdown is presented in Table 5.2. Animal housing and crop storage and processing (CS&P) account for over 50% of the building types and these are a mix of isolated buildings and those which form part of a farmstead. The minor industrial buildings comprise a snuff mill, sawmill and generator house. The miscellaneous category is for other, smaller, buildings which are sometimes found on farmsteads. In this case it is kennels for hunting dogs.

County	Total number of buildings	Designation and tenure			
		Building designation		Tenure	
		Listed	Undesignated	In-hand	Let
Buckinghamshire	1	1	0	1	0
Cheshire	2	0	2	0	2
Derbyshire	1	1	0	1	0
Gloucestershire	3	2	1	0	3
Herefordshire	1	1	0	0	1
Norfolk	1	1	0	1	0
Nottinghamshire	2	1	1	1	1
Oxfordshire	1	1	0	1	0
Shropshire	1	1	1	0	1
Somerset	2	2	0	2	0
Suffolk	1	0	1	1	0
Surrey	3	2	1	3	0
Yorkshire[9]	3	2	1	3	0
Total	**22**	**14**	**8**	**14**	**8**

Table 5.1: Breakdown of the buildings in the conversion works surveys by county, designation and tenure

The buildings are almost evenly split between single storey and two-storey. Of the total, 11 are single storey and 10 are two-storey with the remaining one being three-stories tall. The gross internal floor area was obtained for 17 of the buildings and the details are presented in Table 5.3. A large variation in floor area is evident and further information is

[9] Although the historic English county of Yorkshire is now divided into four areas of civil administration the research continues to treat the area as one county. This is because the geographical territory of Yorkshire as a whole remains familiar and well understood across the United Kingdom.

given in Table 5.4. Just over half the buildings have a floor area measuring less than 500m^2 and so the majority of the buildings undergoing conversion are relatively small.

Building type	**n**	**Percentage (%)**
Animal housing	7	31.8
CS&P	5	22.7
Farmstead	4	18.2
Minor industrial	3	13.6
Miscellaneous	1	4.5
Transport	2	9.1
Total	**22**	**100.0**

Table 5.2: Building types in the conversion works surveys

N	**Minimum (m^2)**	**Maximum (m^2)**	**Mean (m^2)**	**Median (m^2)**
17	33.0	2,721.0	725.2	464.0

Table 5.3: Gross internal floor area of the buildings from the conversion works surveys

Floor area (m^2)	**n**	**Percentage (%)**
< 500	9	52.9
501 - 1000	4	23.5
1001 - 1500	2	11.8
> 1501	2	11.8
Total	**17**	**100.0**

Table 5.4: Size of buildings measured by gross internal floor area

5.1.2 Conversion works case studies

The following three case studies show the type of building conversion projects from which data was collected.

CASE STUDY 1: OAST HOUSE BARN CONVERSION WORKS

Figure 6.1: Oast House Barn post conversion works

Location: Brockhampton Estate, Nr Whitbourne, Herefordshire

Description: Late 19th Century Grade II listed former threshing barn is part of a complex of linked agricultural buildings and farmhouse at the north end of the Brockhampton Estate. The whole site is of 18th to late 19th Century origins and its significance is in the group value and its prominence in its rural landscape setting. The Oast House Barn is built in brick with a plain clay tile roof. There are decorative 'I' shaped vents in the external walls. The barn is approximately 24 metres long by 7 metres wide and the height is approximately 5 metres.

Agricultural use: The most recent agricultural use had been to house cattle but the barn had been unused since the outbreak of foot and mouth disease in 2001.

Conversion: In 2005 the National Trust were approached by a prospective tenant who sought suitable buildings for his micro-brewery business and he was directed to the Oast House Barn. The project brief was therefore to convert the barn to house a micro-brewery. Due to the building's listed status, there were a number of considerations for the works: alterations would have to be reversible; the external appearance could not be changed; and there had to be a distinction between the old and new elements of the fabric. Other considerations included measures to allow bats to remain in the building and measures to keep the building free from frost and vermin.

Relatively little external work was required. A new timber front door was installed and the open end of the threshing corridor was blocked up using oak weatherboards. The ventilation holes were blocked by individually cut glass panes and a sealed bat box was installed in the roof. Internally, a new concrete floor was laid and a drainage system installed. Two wooden storage rooms were erected in the brewing hall and a portakabin was installed in the threshing corridor to provide an office and a mess. A raised timber walkway was built to provide access between the brewing hall and the portakabin and a timber partition was constructed between the brewing hall and threshing corridor. Services, including water, telecoms and power also had to be installed. The project commenced on site in January 2008 and it was completed 7 months later. It was funded by a combination of the National Trust Investment Panel and the Brockhampton Estate Farm Building Repairs Budget. The total cost was around £55,000.

Local economic impact: The direct local impact of the Oast House Barn conversion works was the contribution from the National Trust (Investment Panel and Brockhampton Estate) gathered specifically for the works. One of the indirect impacts is the expenditure on contractors and suppliers within the 30 minute drivetime and county boundaries. The building contractor was from within the 30 minute drivetime area of the building and the drainage consultant was from elsewhere in Herefordshire. However, the architect and structural engineer were from outside both the 30 minute drivetime and county boundaries. The expenditure of the building contractor and drainage consultant are another indirect impact and the expenditure of all householders associated with the project is the induced impact within the 30 minute drivetime area and county boundaries.

The expenditure data from the Oast House Barn fed into the following conversion works LM3 models:

- Crop storage and processing (originally a threshing barn).
- Gross internal floor area < 464m^2 (approximately 168m^2).
- Listed (Grade II).
- Manufacturing SIC class (drinks production).
- Let building (micro-brewery is a tenant enterprise).

Figure 6.2: Ventilation holes

Figure 6.3: Ventilation hole

Source: National Trust

Figure 6.4: Brewing hall

Figure 6.5: Store room and partition

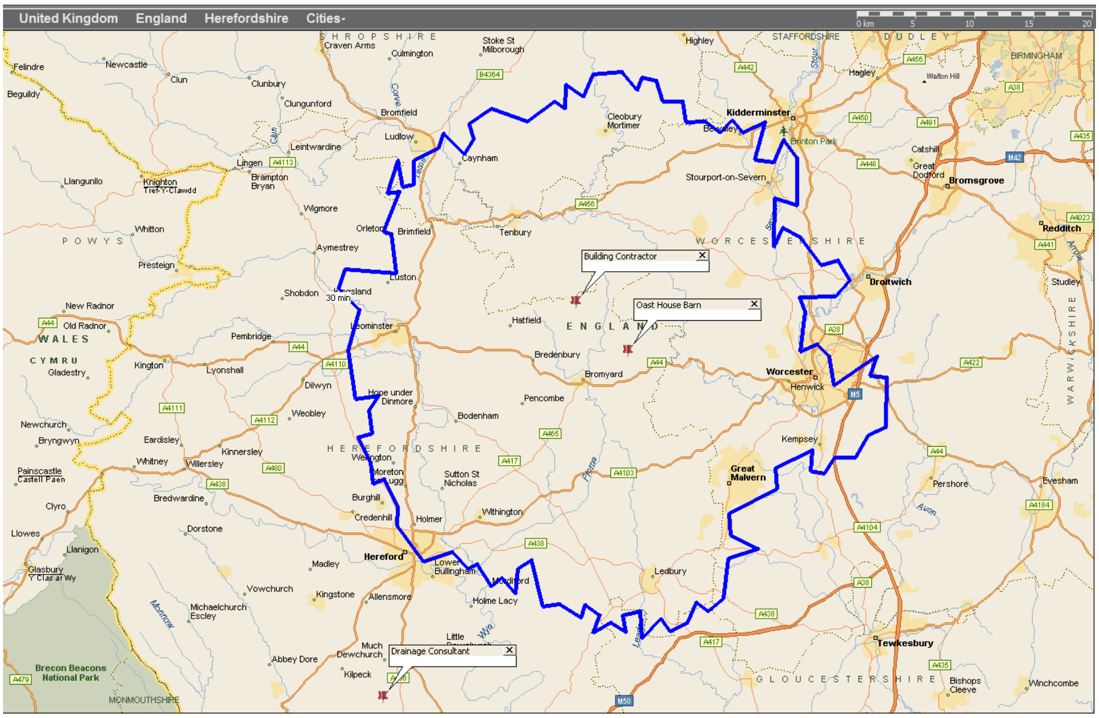

Figure 6.6: Oast House Barn 30 minute drivetime area

CASE STUDY 2: HOW HILL FARM CONVERSION WORKS

Figure 6.7: How Hill Farm buildings post conversion

Location: Fountains Abbey Estate, Ripon, North Yorkshire

Description: Late 18th/early 19th Century farm buildings situated in a traditional courtyard shape in around 10 hectares of pastureland. A Dutch barn and some sheds were 20th Century additions. The original roofs were pantile but some had been replaced with asbestos cement. The walls were a mix of stone and brick. The floor area is around 556m$^{2.}$

Agricultural use: A survey in 1810 recorded a farmhouse on the site and the farm remained in use until the outbreak of the Second World War.

Conversion: The Fountains Abbey Estate was reaching its visitor capacity and so alternative sources of income were sought which would not increase the number of day visitors. Given that the existing holiday cottages on the estate were performing well and that the idyllic location of How Hill Farm made it well-suited to become holiday cottages, it was decided to convert How Hill Farm into holiday cottages. The buildings were to be split into 5 cottages with a total of 24 bed spaces.

The buildings are not listed but the National Trust sought to minimize alteration to the original construction and to use local, natural materials wherever possible. Due to the two water bodies close to the site, a Great Crested Newt survey had to be carried out but none were found. The relatively modern Dutch barn and sheds were removed to provide better internal access to the courtyard. The original stone walls were re-pointed inside and out and the brick walls required some additional bricks. The roof trusses were replaced like-for-like and the original tiles were supplemented with additional reclaimed ones. New window frames were made by hand to satisfy conservation requirements and double glazing was permitted. A ground source heat pump was determined to be the best renewable option for heating and hot water. Other utilities work included: drainage, a sewage treatment system; and a borehole to give a water supply. Work commenced on site in April 2009 and was completed in March 2010. The total cost was around £1.1million and the project was funded through National Trust internal funds.

Local economic impact: The direct impact on the local economy is the money from the National Trust's funds gathered specifically for the How Hill project. A number of contractors and suppliers were engaged in the project but none were from within the 30 minute drivetime area. However, there were a number of Yorkshire (county) businesses used and they in turn engaged the services of other local businesses to give the indirect local economic impact.

The data from the How Hill Farm works fed into the following LM3 conversion works models:

- 'Other' building type (farmstead complex).
- Gross internal floor area > 464m$^{2.}$
- Unlisted building.
- A&FS SIC class (holiday cottages)
- In-hand building.

Figure 6.8: How Hill Farm courtyard pre conversion

Figure 6.9 : How Hill Farm pre conversion

Source: *National Trust*

Figure 6.10: How Hill Farm courtyard

Figure 6.11: How Hill living room and entrance hall

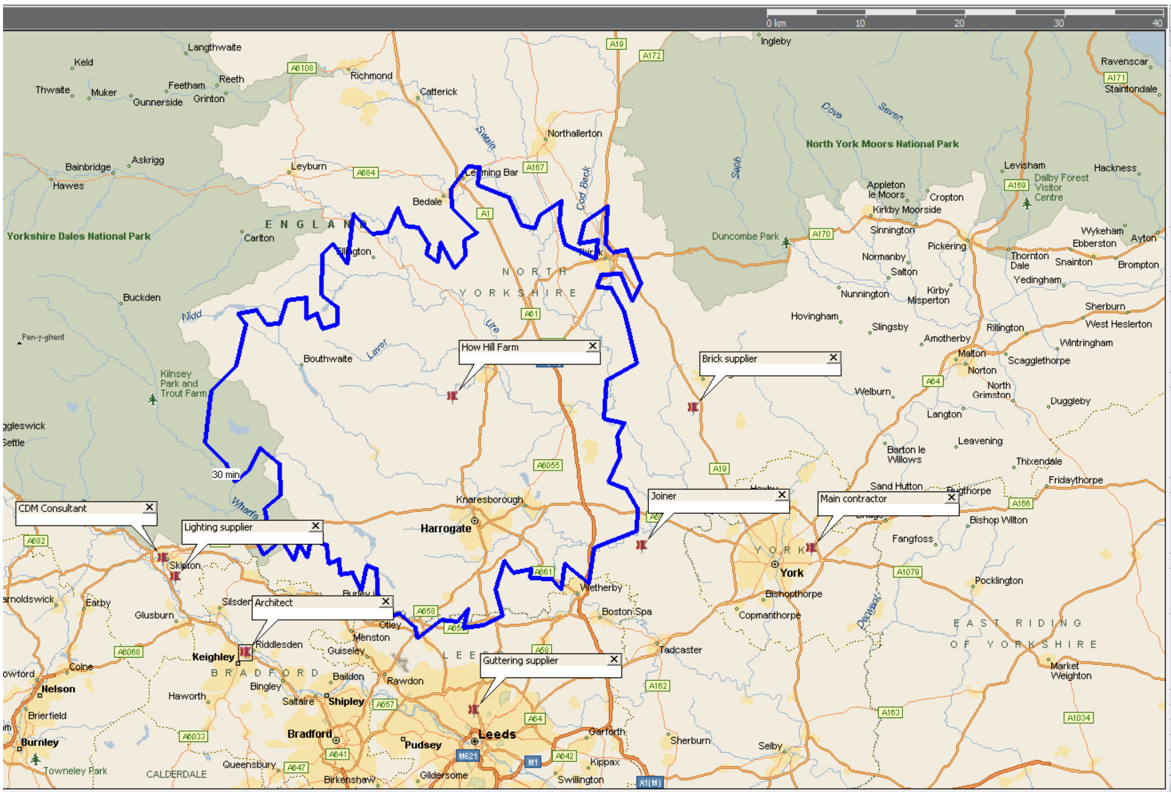

Figure 6.12: How Hill Farm 30 minute drivetime area

CASE STUDY 3: SHERINGHAM PARK CONVERSION WORKS

Figure 6.13: Sheringham Park visitor facilities

Location: Sheringham Park, Upper Sheringham, Norfolk

Description: Threshing barn and various subsidiary buildings, dating from around 1870-1880, aside from the buildings on the north-west of the complex which were reconstructed in 1988 and 1991. The walls of all the buildings are whole pebble flints with red brick dressings. The roofs are red and black-glazed pantiles and the threshing barn has double timber doors. The complex is within the curtilage of the Hall and Ivy Lodge which are listed Grade II*.

Agricultural use: A National Trust tenant farmer had been using the buildings for storage and part of the complex was in use as the estate workshop.

Conversion: A long-term solution was required to the exceptional growth in visitor numbers to Sheringham Park which has resulted in a piecemeal expansion of visitor reception facilities. Further expansion into Sheringham's historic, designated landscape was undesirable and the conversion of under-utilised farm buildings was the preferred option. The project brief was to improve the visitor facilities by providing an exhibition space, an office, catering facilities and reception area all under one roof. Through improving the visitor facilities, the National Trust sought to maintain and increase the contribution that Sheringham Park makes to the North Norfolk tourist economy.

The design brief specified the use of traditional Norfolk materials including: reed, flint and lime mortars and renders. The environmental impact of the building was important and efforts were made to re-use and recycle materials. The flint and rendering on the walls were repaired and restored and the undersides of the roofs were lined using traditional reed. The buildings were insulated with sheep wool insulation and a biomass boiler was installed to provide heating and hot water. The project was completed in October 2005. The majority of the funding came from grants (80%) with the remainder contributed by the National Trust. The total project cost was £1.2million.

Local economic impact: The National Trust sought to use local contractors and suppliers as much as possible as they believed these firms to be the most experienced in the use of local materials. Although the National Trust funding contribution was likely to have been spent on other estate works if not on these particular buildings, the majority of the project funding was raised and subsequently spent specifically for this building conversion. All the contractor firms came from Norwich, which is just beyond the 30 minute drivetime area for the building but still within Norfolk. These firms employed people who live in Norwich and the surrounding area and they sourced some of their supplies within Norwich, especially knowledge services.

The relevant characteristics for the LM3 modelling were: 'Other' building type, floor area <464m^2, listed building, conversion for A&FS use and kept in-hand by the National Trust.

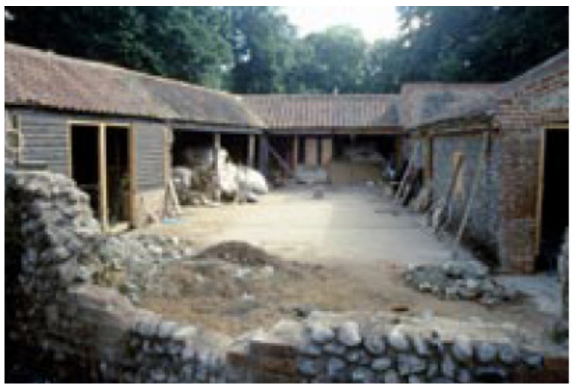

Figure 6.14: Sheringham Park barn undergoing conversion

Source: *National Trust*

Figure 6.15: Sheringham visitor catering facilities

Figure 6.16: Sheringham exhibition space

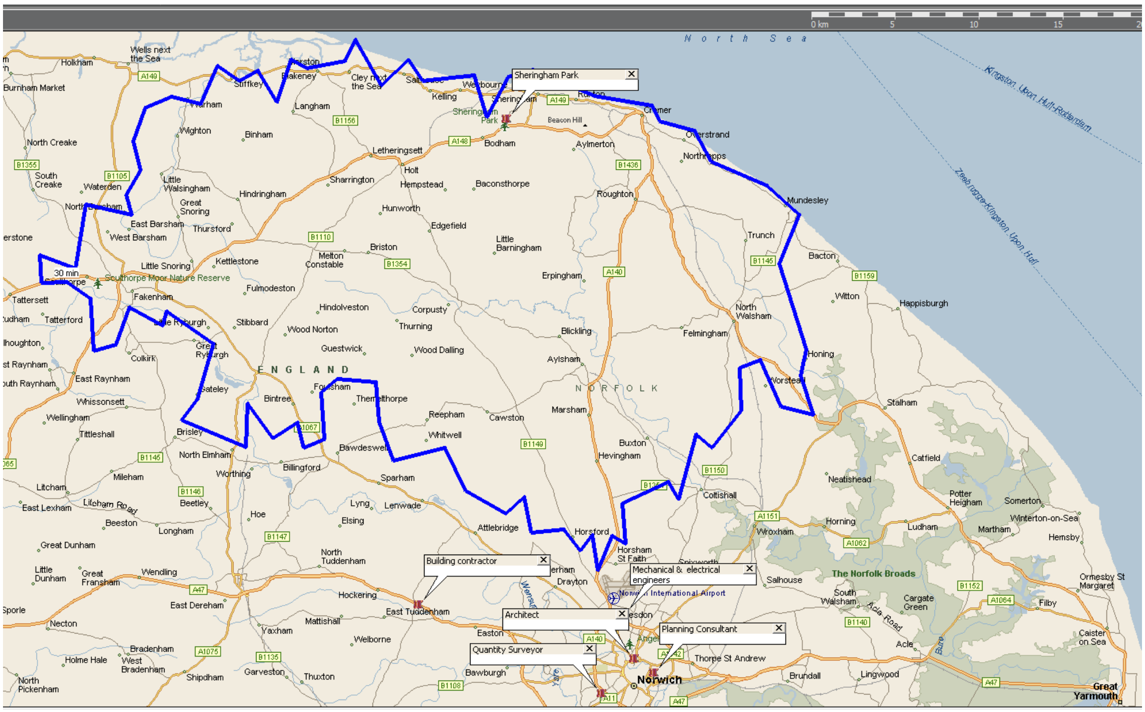

Figure 6.17: Sheringham Park 30 minute drivetime area

5.1.3 The buildings being re-used

The building re-use survey was conducted for 25 buildings spread across 12 counties. As with the conversion works buildings, there is a mix of designation and tenure. The breakdown can be seen in Table 5.5. The buildings are almost evenly split between let and in-hand tenures and 80% are either Grade II listed or undesignated. With regard to building type, Table 5.6 shows that complete farmsteads were the most common building type, followed by CS&P buildings and animal housing. The miscellaneous buildings are kennels for hunting dogs and a slaughterhouse.

A total of 6 of the in-hand buildings and 12 of the let buildings are used for commercial purposes, with 12 of the tenants from the let buildings running independent firms and one running a social enterprise. Seven of the independent firms are family businesses. The buildings are used for a variety of industries and Table 5.7 presents the SIC classes. Manufacturing and accommodation and food service (A&FS) activities are the most common uses, together accounting for 64% of the buildings. Within the manufacturing class, 6 of the 9 buildings are used for food or drink production, including 4 which are microbreweries. The A&FS class is split 4:3 between holiday lets and food service facilities. The buildings have been occupied for a median of 5 years and the length of occupation ranges from a few weeks to 30 years.

County	Total number of buildings	Designation and tenure			
		Building designation		Tenure	
		Listed	Undesignated	In-hand	Let
Cheshire	3	1	2	1	2
Gloucestershire	3	2	1	0	3
Herefordshire	1	1	0	0	1
Norfolk	2	1	1	2	0
Nottinghamshire	3	1	2	1	2
Oxfordshire	2	2	0	1	1
Shropshire	1	0	1	0	1
Somerset	2	2	0	2	0
Suffolk	1	0	1	1	0
Surrey	1	1	0	1	0
Wiltshire	4	3	1	1	3
Yorkshire[10]	2	1	1	2	0
Total	**25**	**15**	**10**	**12**	**13**

Table 5.5: Breakdown of the building user survey buildings by county, designation and tenure

Building type	n	Percentage (%)
Animal housing	5	20
CS&P	5	20
Farmstead	9	36
Minor industrial	3	12
Miscellaneous	2	8
Transport	1	4
Total	**25**	**100**

Table 5.6: Building user survey buildings by type

[10] Although the historic English county of Yorkshire is now divided into four areas of civil administration the research continues to treat the area as one county. This is because the geographical territory of Yorkshire as a whole remains familiar and well understood across the United Kingdom.

SIC	n	Percentage (%)
A&FS	7	28
Administrative and support service activities	2	8
Arts, entertainment and recreation	1	4
Education	3	12
Manufacturing	9	36
Professional, scientific and technical	1	4
Retail	2	8
Total	**25**	**100**

Table 5.7: SIC classes of the buildings in the building user surveys

The various building uses necessitate the employment of staff and Table 5.8 presents a descriptive analysis of the number of people employed in terms of fulltime equivalents (FTEs). The median figures have been included for a more accurate analysis, as the mean figures are skewed by a few large businesses. The median number of FTEs across the 25 buildings is 5.3, with a median of 4.8 of these living within the 30 minute drivetime and county area. For 22 of the buildings, it was possible to find out where FTEs had been recruited from, which is important for establishing whether a new FTE has been created in the local economy. A median of only 0.4 FTEs left another job within the 30 minute drivetime area to work in the converted building, therefore suggesting that the re-use of the buildings must be creating additional FTEs within the local economy.

It is also worth considering the contribution of the volunteer opportunities that are created through the use of the converted buildings. Although a wage is not provided in these roles there may be other impacts on the local community. In terms of FTEs, the volunteer numbers range 0 to 10.5 with a mean of 0.7.

	n	Minimum	Maximum	Mean	Median
Total FTEs	25	0.7	50.9	10.0	5.3
FTEs resident in 30 minute drivetime area	24	0.9	36.8	8.0	4.8
FTEs resident in county	24	0.9	36.8	8.0	4.8
FTEs resident elsewhere	24	0.0	5.3	0.4	0.0
FTEs recruited from 30 minute					

drivetime area	22	0.0	8.8	1.7	0.4

Table 5.8: FTEs employed in the re-use of the converted buildings

5.1.4 Building re-use case studies

The following three case studies demonstrate the type of building re-use projects from which data was collected.

CASE STUDY 4: TYNTESFIELD HOME FARM RE-USE

Figure 6.18: Tyntesfield Home Farm

Location: Tyntesfield Estate, Wraxall, North Somerset

Description: Tyntesfield Home Farm was constructed as a Victorian Model Farm between 1881 and 1883. The complex is split over two levels and includes the former forge, covered yards, stables, coach house and byres. The covered yards are the focal point of the complex and they are Grade II* listed. The other buildings are Grade II listed. The walls are all constructed from dressed or coursed grit stone blocks. The roof structures are timber and are covered with single Roman clay tiles. The total floor area is 1,454m^2.

Conversion: When the National Trust acquired the Tyntesfield Estate in 2002, their intention was that the severely dilapidated Home Farm would be re-used for something. It had not been in use since the 1970s. A new visitor centre had been planned for the other end of the Estate but construction never started due to planning and budget issues. The focus then returned to Home Farm to see if it could accommodate the visitor centre brief and there was more than enough space for the proposed facilities. The construction work began in January 2009 and Home Farm visitor centre officially opened in June 2011.

New use: The covered yards were converted to house: a restaurant with 150 covers, a gift shop and exhibition space. The original features have been retained wherever possible to maintain the character of the buildings. A new staircase, lift and bridge walkway provide access to the upper yard which accommodates the ticket and information office, a craft demonstration area and retail space for plants and second-hand books.

Local economic impact: The main catering enterprise currently employs 9 full-time staff and 12 part-time staff, all of whom live within the 30 minute drivetime area. The National Trust's policy on sourcing local food means that the food is sourced from either Tyntesfield's kitchen garden or from local suppliers within a 30 mile radius. Other goods, such as crockery, are purchased from further afield through National Trust central sourcing arrangements.

The retail enterprise currently employs 2 full-time, 3 part-time and 12 volunteer staff. All of these staff members reside within the 30 minute drivetime area. With regards to the sourcing of stock to sell, only a small proportion is sourced from within the 30 minute drivetime area. The locally sourced products include ceramics, biscuits, flowers and photographs. The majority of stock is centrally sourced through national supply contracts but around 20% of stock purchased is from within the National Trust South West region.

The relevant building re-use LM3 models for Home Farm are:

- Building kept in-hand.
- A&FS SIC classification (catering accounts for the greater proportion of income).
- Building occupied for less than 5 years.
- User indigeneity is local (based on majority of staff).
- Turnover greater than £75,000.
- 'Other' building type (farmstead complex).

Figure 6.19: Restaurant in Home Farm

Figure 6.20: Stalls in Home Farm restaurant

Figure 6.21: Home Farm exhibition space and access to upper level

Figure 6.22: Original feeding troughs in Home Farm shop

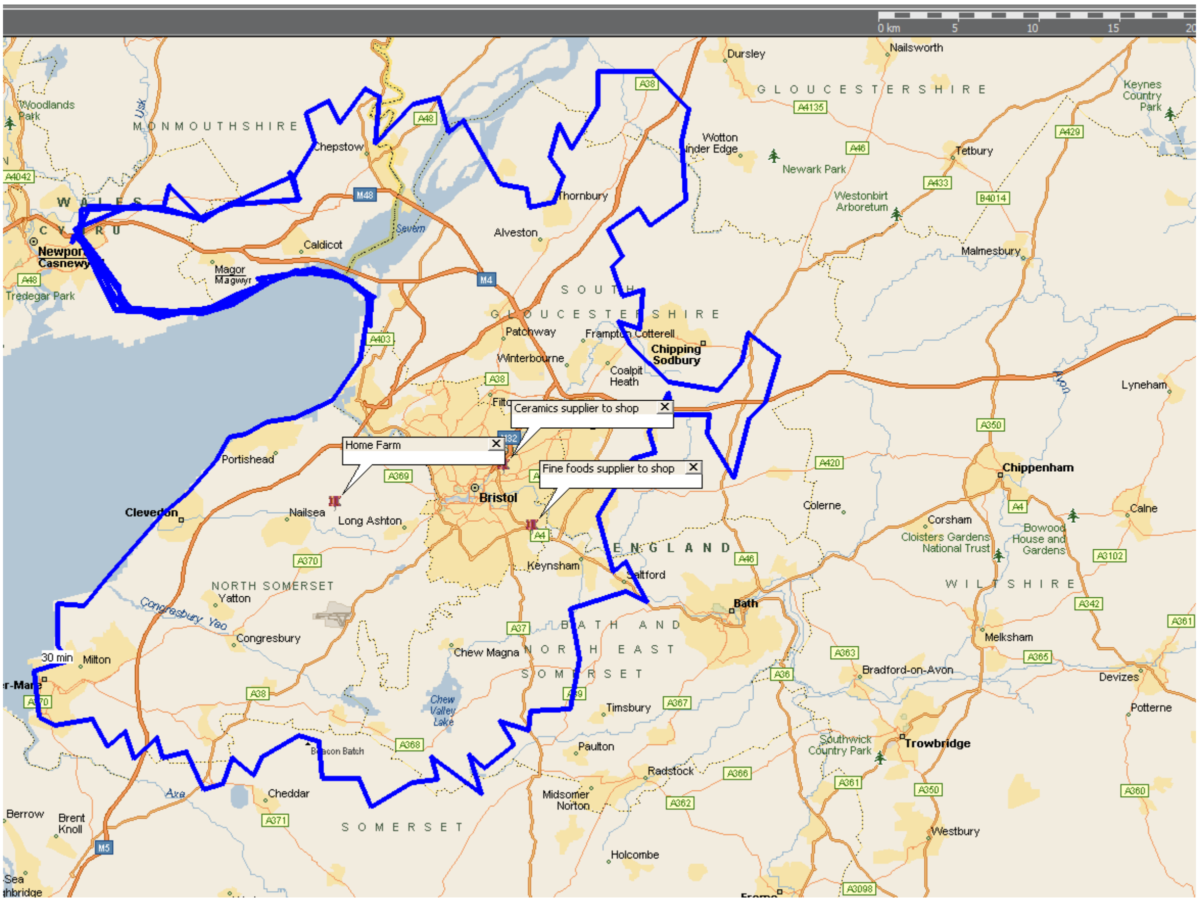

Figure 6.23: Tyntesfield Home Farm 30 minute drivetime area

CASE STUDY 5: RE-USE OF THE KENNELS

Figure 6.24: The Kennels, Clumber Park

Location: Clumber Park, Worksop, Nottinghamshire

Description: The kennels were originally constructed in 1891 for the Duchess of Newcastle and they remained in use until around 1916. Since then they have been largely unused, except for occasional storage purposes. They are built of red brick in English bond and comprise a two storey central building with single storey wings. The roofs are grey slate with red ridge tiles alternately raised. The internal floor space is approximately 180m^2.

Conversion: The tenant already had a local brewing business which he wished to expand but he was unable to find appropriate space. He approached the National Trust about establishing a micro-brewery in one of their traditional buildings as he wanted premises which reflected the principles of his business. A number of buildings at Clumber were considered and the Kennels was found to be the most appropriate in terms of size, location and the required expenditure. Features such as the ventilated ridge tiles make it ideal for brewing in. There were already several small businesses housed at Clumber and the National Trust is keen to support local producers, especially through purchasing goods from its tenants.

New use: The expansion into the Kennels has allowed the brewery to increase its brewing capacity from 180 gallons to 360 gallons per week plus vessel capacity for a further 100% increase. Brewing began in October 2010 and uses water from Clumber's well. The tenant enjoys the quiet, rural location although there are some seasonal issues. The building is cold in the winter and the water can freeze. In the summer the building becomes hot.

Local economic impact: The tenant works full-time in brewing at his two sites and he resides 12 miles from Clumber Park. He has lived in the area for nearly 30 years but is not originally from the area. The majority of his close family and friends live locally and he is involved in community activities. He employs one part-time staff member who also lives locally and who left a local job to work at the brewery. 80% of sales are within the local area and around 50% of purchases are made locally. A firm in Nottingham supplies the hops and yeast and although the firm is within Nottinghamshire the hops and yeast are often imported from other countries. The malt supplier is located outside the 30 minute drivetime area and county.

The brewery's expenditure data was fed into the LM3 models for building re-use. As a former housing for dogs, the relevant building type model is the animal housing model. With regards to the business size model, the Kennels brewery is in the 'turnover less than £75,000 category. The tenant is not originally from the local area and so the relevant indigeneity LM3 model is the non-local category. The length of building occupancy model category is less than 5 years and the SIC classification model category is manufacturing. Finally, the brewery's expenditure data is also relevant for the let building category in the building tenure LM3 models.

Figure 6.25: The brewing hall at the Kennels

Figure 6.26: Sampling area at the Kennels

Figure 6.27: First floor storage area at the Kennels

Figure 6.28: Stairs to the first floor in the Kennels

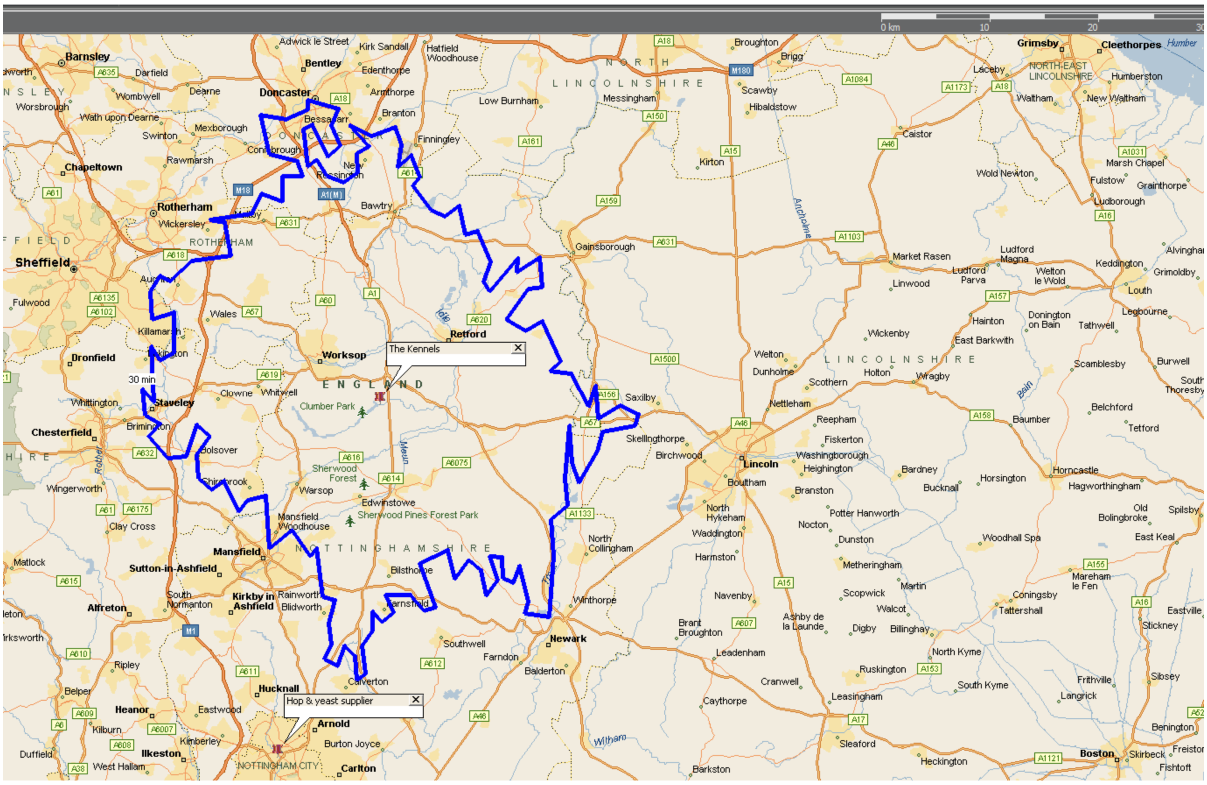

Figure 6.29: The Kennels 30 minute drivetime area

CASE STUDY 6: LAUNDRY COTTAGES RE-USE

Figure 6.30: Old Laundry Cottages

Location: Clumber Park, Worksop, Nottinghamshire

Description: Constructed in 1908, the Laundry Cottages are a single storey building with brick walls and slate roof tiles. The building is Grade II listed and it was originally constructed to house the steam generators which provided electricity for Clumber House. It later housed the laundry facilities (hence the current name) for Clumber house and in the 1950s it was converted into two separate tenanted properties.

Conversion: The National Trust's commercial strategy for Clumber Park included improving the retail and catering facilities and when the Laundry Cottages were vacated there was an opportunity to convert them for a new commercial use. The size and location of the building made most suitable for use as a shop. Traditional materials were used and original features were retained as much as possible. The project was completed in April 2006.

New use: The conversion of the Laundry Cottages increased the retail space at Clumber Park by 100%. The open layout with wide circulation spaces enables ease of movement for visitors. The small extension on the east wing provides kitchen and toilet facilities for the retail staff.

Local economic impact: During the five and a half years that the new shop has been open, the turnover has increased by 100% compared to when the shop was in its previous, smaller location. There has also been a 20% increase in the number of retail staff employed. Currently there are 2 full-time, 5 part-time and 9 seasonal/casual staff and all live within the 30 minute drivetime area. With regards to the purchase of stock, only around 10% of purchases by value are from within the local area. The majority of stock is sourced through National Trust central contracts.

The Laundry Cottages expenditure and employment data is used in the following building re-use LM3 models:

- In-hand building.
- ‘Other’ SIC classification.
- Building occupied for more than 5 years.
- Local building users.
- Turnover greater than £75,000.
- ‘Other’ building type.

Figure 6.31: Old Laundry Cottages interior

Figure 6.32: Old Laundry Cottages interior 2

Figure 6.33: Old Laundry Cottages entrance

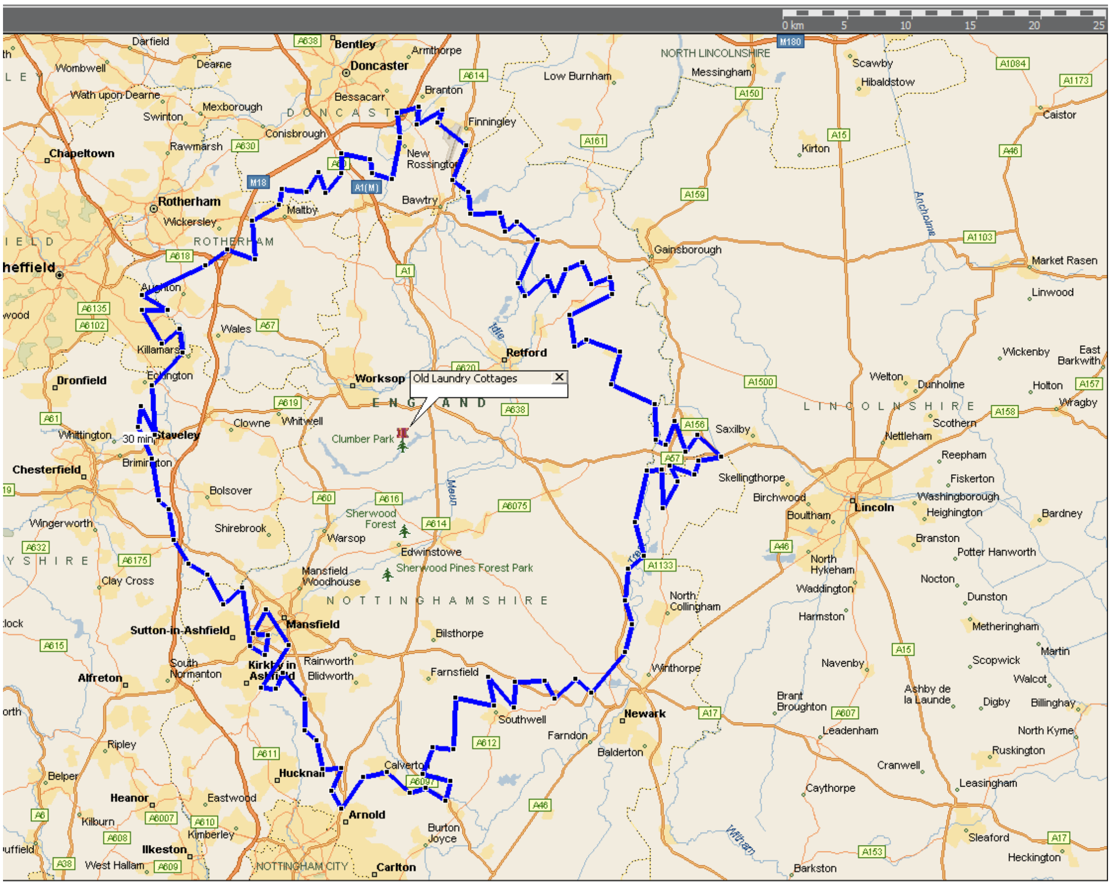

Figure 6.34: Old Laundry Cottages 30 minute drivetime area

5.2 First round economic linkages

This section presents a preliminary investigation of the first round economic linkages for both the conversion works and the re-use of the buildings. It begins by examining the sources of the initial income for the conversion works and building re-use and then it explores the initial expenditure for both.

5.2.1 Sources of initial income

The total expenditure on conversion works ranged from £4,500 to £8,443,000 and Table 5.9 presents the composition of this expenditure. As explained in chapter four, it was important to establish how much of the expenditure would have occurred if no grants had been received. This information was only available for 12 of the conversion works projects, but it indicates that less than one fifth of the works expenditure would have occurred had there been no grant funding. It is also noted from Table 5.9 that the grant funding typically only covered 29.0% of the total conversion works expenditure. This demonstrates the importance of the availability of grant funding for traditional building works. The grants are also important as they increased the overall expenditure on the works, which meant more income for contractors and suppliers, local or otherwise.

	n	Mean (£)	Percentage of total expenditure (%)
Total works expenditure	22	1,193,689.82	100.00
Total received from grants	22	346,574.95	29.00
Total own contribution	22	847,114.87	71.00
Expenditure if grants had not been received	12	202,832.17	17.00

Table 5.9: Composition of conversion works expenditure

The participants were asked whether their own contribution to the conversion works would have still been spent within the 30 minute drivetime area, in the absence of any grants received. Table 5.10 presents a breakdown of how the conversion works expenditure was split between grants and own contributions according to the buildings' characteristics. It is seen that expenditure on converting CS&P buildings had the highest proportion of grant contribution and that converting buildings for manufacturing use had the highest proportion of own contribution. As there was no grant funding for these conversions, it follows that the expenditure would have occurred in the absence of grants. The next highest proportion of expenditure in the absence of grants is for the let buildings, indicating that tenants are more likely to undertake the conversion works in the absence of grants.

Participants were also asked to consider whether they would have spent a similar amount of money on other capital works had they not carried out the conversion works. 13 participants answered this with 9 stating that they would have still spent a similar amount of money on capital works and that this would have occurred within the 30 minute drivetime area. However, it should be noted that participants had difficulty with this question because often they raised the money specifically to carry out the conversion works. Thus, it was only available to be spent because of the decision to carry out the conversion works. Furthermore, 18 participants were able to say whether the building would have been maintained had it not been converted and 10 of these stated that the building would not have been maintained. This implies that in the majority of cases the conversion works helped to ensure the buildings' survival, which is an important finding in itself.

		n	Total works expenditure (£)	Grants (%)	Own contribution (%)	Expenditure if no grants (%)
Building type	Animal housing	7	7,858,382.00	36.44	63.6	1.6
	CS&P	5	1,105,980.00	66.87	33.1	2.2
	Other	10	14,909,434.40	22.32	77.7	15.3
Building size	< $464m^2$	9	4,199,807.00	56.91	43.1	14.8
	> $464m^2$	8	19,673,989.40	23.09	76.9	9.2
Designation	Listed	15	21,053,489.00	27.68	72.3	10.9
	Unlisted	10	2,820,307.40	39.15	60.9	4.7
SIC	A&FS	10	20,729,029.40	25.60	74.4	8.7
	Manufacturing	5	139,330.00	0.00	100.0	100.0
	Other	7	3,005,437.00	54.08	45.9	19.9
Tenure	In-hand	14	23,549,966.40	29.18	70.8	9.7
	Let	8	323,830.00	18.28	81.7	45.3

Table 5.10: Source of conversion works expenditure according to building characteristics: given by proportion of total expenditure

The converted buildings have been re-used by a variety of industries and Table 5.11 analyses their average annual turnover. The median figure is stated as the standard deviation indicated that the mean had been skewed by a few particularly large turnover figures.

	n	Minimum (£)	Maximum (£)	Mean (£)	Median (£)
Average annual turnover	25	4,800.00	1,032,817.00	243,432.59	75,000.00

Table 5.11: Average annual turnover resulting from building re-use

The turnover is generated from the sale of goods and services and it is worth considering where, geographically, these goods and services were sold. It is seen from Table 5.12 that a mean of 41.6% of sales were made within the 30 minute drivetime area, indicating fairly strong downstream economic linkages between the buildings and the local economy.

It is also evident that around half of the sales were outside both the 30 minute drivetime area and the county, which shows that the industries using these buildings are able to generate income outside the local economy. Therefore, the building uses are not fully dependant on sales from any particular geographical area.

Location of sales	**Mean (%)**
Sales in 30 minute drivetime area	41.6
Sales in the county	42.7
Sales elsewhere	52.6

Table 5.12: Location of sales from building re-use: given as percentage of total sales by value

5.2.2 Initial expenditure

Moving on to the location of expenditure, Table 5.13 presents the mean proportion of expenditure from the conversion works and building re-use which occurred within the various boundaries. It is encouraging to see that a mean of 59.5% of the total conversion works expenditure occurred within the 30 minute drivetime area, as this implies that the conversion works have strong local economic linkages. The re-use of the buildings has relatively weaker local economic linkages, with 46.4% of expenditure occurring within the 30 minute drivetime area. However, the data shows that across the sample the buildings have relatively strong ties to the local economy.

Location of expenditure	Conversion works mean (%)	Building re-use mean (%)
30 minute drivetime area	59.5	46.4
County	65.6	51.5
Elsewhere	34.4	48.5

Table 5.13: Location of expenditure: given by percentage of total expenditure

Having examined the overall initial expenditure, consideration will now be given to how the location of expenditure varies according to the characteristics of the buildings. The data for each variation within the building characteristics was condensed where possible to give a sufficient quantity of data for the LM3 models.

Starting with building type, it is evident from Table 5.14 that the conversion of former CS&P buildings injected the highest proportion of expenditure into the 30 minute drivetime area and county. The conversion of the other building types injected the least expenditure locally but overall at least half of the conversion works expenditure occurred within the 30 minute drivetime area and county boundaries. This differs to the expenditure relating to the re-use of the buildings, as just under half of the re-use expenditure occurred within the 30 minute drivetime area and county. Also it was the re-use of animal housing buildings which injected the greatest proportion of expenditure into the local economy. Furthermore, it is interesting to note the similarity between the 30 minute drivetime area expenditure for the conversion of the three building types, compared to that of the expenditure from re-use. There is a great difference between the expenditure for the re-use of animal housing buildings, compared to the re-use expenditure for the other two building types. With regard to initial injections into the local economy, it is the conversion of animal housing buildings and the re-use of CS&P buildings, which have the greatest initial impact.

The next variable to consider is the tenure of the building as there may be differences in the location of expenditure for the buildings which the National Trust keeps in-hand and those which are let. As is seen from Table 5.14, a greater proportion of the conversion works expenditure entered the 30 minute drivetime and county from the buildings which are let, compared with those that are in-hand. This may be because the tenants choose to source more goods and services locally, or it may be because the required goods and services for these particular tenants were more readily available locally. The reason for the latter could be due to the purpose for which the buildings were being converted. The re-use of the let buildings also injected a greater proportion of expenditure into the 30 minute and county boundaries. When discussing the choice of suppliers, it was the tenants who more often made reference to efforts to use local suppliers. It should be noted however, that due to institutional policies, the tenants have more freedom in their supplier selection than the National Trust do. The National Trust has a lot of national supply contracts to give economies of scale and so the option to choose local suppliers is not always available to them. However, the participants did acknowledge the National Trust's efforts in local sourcing for catering and also that the National Trust retail managers have some autonomy to source local goods for visitor shops.

Characteristic		**n**	**Mean expenditure 30 minute drivetime area (%)**	**Mean expenditure county (%)**	**Mean expenditure elsewhere (%)**
Building type	Animal housing	7	63.3	65.5	34.5
	CS&P	5	75.4	75.4	24.6
	Other	10	50.9	61.7	38.3
Tenure	In-hand	14	46.9	55.2	44.8
	Let	8	82.9	84.8	15.2
SIC Class	A&FS	10	54.2	57.0	43.0
	Manufacturing	5	78.7	78.7	21.3
	Other	7	51.9	66.0	34.0
Building size	< $464m^2$	9	75.4	82.5	17.5
	> $464m^2$	8	22.3	26.0	74.0
Building designation	Listed	15	58.5	66.8	33.2
	Unlisted	10	61.0	63.7	36.3

Table 5.14: Location of conversion works expenditure according to building characteristics: given by percentage of total expenditure

The purpose for which the building is being converted and re-used inevitably impacts on the total expenditure and it is worth examining how the location of expenditure varies according to the SIC class for which the building is converted and re-used. In Table 5.14, it is seen that conversions for manufacturing injected the highest proportion of expenditure into the 30 minute drivetime area and county. It could be that the labour and materials necessary to fit out the buildings for manufacturing were more readily available within the local economy, but this in turn depends partly on the type of manufacturing which is to take place and the particular installations required for this. For example, three of the five buildings converted for manufacturing use became microbreweries and so the sourcing of the brewing equipment was an important determinant of local expenditure. However, it could also have been the case that the buildings being converted for manufacturing only required some standard internal works to prepare them for their new use. The manufacturing class is also the re-use SIC class with the majority of expenditure typically occurring within the 30 minute drivetime area and county boundaries. In this case, six of the nine manufacturing activities were food and drink production and so it is perhaps expected that their inputs were more readily available locally. Furthermore, as these expenditure figures also include labour costs it may be that the local expenditure for manufacturing was boosted by the local population having the required skills.

The variation in the location of the conversion works expenditure was considered according to two other physical characteristics of the buildings, namely size and designation. The findings are presented in Table 5.16. The size of the building was obtained in terms of the gross internal floor area and it is seen that the conversion works expenditure within the 30 minute drivetime area and county for the smaller buildings is more than three times that for the larger buildings. This suggests that perhaps the necessary skills and experience for converting the larger buildings were either not available locally or they were more competitively priced elsewhere.

It is also interesting to look at the economic impact according to the buildings' designation, as this is a useful proxy for historical significance (intrinsic value). Examining local economic impact according to the buildings' designation enables a link to be made between the intrinsic and instrumental values of the buildings. From the data, it is evident that converting the unlisted buildings injected a greater proportion of expenditure into the 30 minute drivetime area. However, with regard to expenditure within the county, it was the conversion of the listed buildings which injected the greater proportion of expenditure. Overall, the majority of expenditure typically occurred within the local area regardless of the buildings' designation.

As regards the decision on sourcing goods and services for the conversion works, it is important to note that contractors were used in 21 of the 22 conversion projects and the mean proportion of work that they carried out was 83%. Therefore, the key sourcing decision is with regard to selecting contractors. Only 15 of the participants gave their criteria for selecting contractors and Table 5.15 presents the primary reasons that were stated for selecting a particular contractor. For just over half of the participants, the primary reason was the contractor's reputation within the industry. In only two cases was a contractor chosen primarily because they were a local firm. In eleven cases (73.3%), the reputation of the firm and the costs involved were deemed to be of greater priority than whether the firm was local. It was also noted that the National Trust has built up networks with contractors and suppliers for use in in-hand building projects. Working relationships are maintained with contractors and suppliers who demonstrate that they can meet the National Trust's required standards.

Primary reason for selection	**n**	**Percentage (%)**
Cost	5	33.3
Local firm	2	13.3
Reputation	8	53.3

Table 5.15: Main criteria when selecting contractors and suppliers for the conversion works

The location of the building re-use expenditure was also examined according to the size of the business, the length of occupancy of the building and the indigeneity of the building user. The results of this analysis are presented in Table 5.16. The building users' length of occupancy is split around the median which was 5 years. The users who have occupied the buildings for less than 5 years are more strongly tied to their locality in terms of sourcing supplies. This is contrary to what one might expect, as one would assume that those users who are more established in their building would perhaps have built up more local contacts. However, it will depend on whether the required supplies are locally available.

The building users' average annual turnover is also split at the median figure. The proportions of expenditure within the various boundaries are more closely matched and so there is little difference to be accounted for. Half of the higher turnover group are from the manufacturing SIC class, whereas more of the businesses in the lower turnover group are from SIC classes with higher levels of local expenditure. Thus, local expenditure appears to vary more according to the length of occupancy than for the average annual turnover, but it is important to consider what industry sector the business is in.

Characteristic		n	Mean expenditure 30 minute drivetime area (%)	Mean expenditure county (%)	Mean expenditure elsewhere (%)
Building type	Animal housing	5	64.5	64.5	35.5
	CS&P	5	44.0	48.8	51.2
	Other	15	42.4	49.0	51.0
Tenure	In-hand	12	36.8	47.1	52.9
	Let	13	56.0	56.0	44.0
SIC Class	A&FS	7	34.0	49.5	50.5
	Manufacturing	9	60.6	60.6	36.4
	Other	9	40.6	43.9	56.1
Length of occupancy	< 5 years	13	50.9	52.5	47.5
	> 5 years	12	41.2	50.4	49.6
Business size (turnover)	< £75,000	14	46.9	54.1	45.9
	> £75,000	11	45.7	47.9	52.1
Indigeneity	Local	10	44.2	47.3	52.7
	Non-local	12	52.2	56.7	43.3

Table 5.16: Location of building re-use expenditure according to building characteristics: given by percentage of total expenditure

Local expenditure also appears to vary more according to the building users' indigeneity (i.e. whether they were raised in the local area). This characteristic was chosen to examine whether local or non-local (i.e. new comers) people are spending a greater proportion of money within the local area. 22 participants stated where they were raised and although the non-local users have a slightly greater expenditure within the 30 minute drivetime area and county, the difference between the two is not large. The difference could be accounted for by examining which industries the two groups are involved in. Half of the non-local users have manufacturing businesses or businesses from the 'other' SIC class. As these SIC classes have a relatively high proportion of expenditure within the local area, the corresponding expenditure for the non-locals' is raised. Half of the local users also run manufacturing businesses, but the remainder are spread across SIC classes with lower proportions of local expenditure. The industry sector therefore can help account for the difference in local expenditure according to the building users' indigeneity.

5.2.3 Initial employment arising from converting and re-using the buildings

For the conversion works, the participants were asked to state how many FTEs they had employed to carry out the works. As contractors were used for 21 of the 22 conversion works projects, the participants employed relatively few FTEs directly. However, it is still important to consider the proportion of these FTEs which were additional (new) jobs in the local economy. The calculations and assumptions for this are explained in chapter four (section 4.3) and Table 5.17 shows the proportion of FTEs that were additional according to the buildings' characteristics. As can be seen, the building characteristics associated with a larger proportion of additional FTEs are: animal housing, floor area greater than $464m^2$, unlisted, converted for manufacturing use and let. There is relatively little difference between the figures for the buildings' designation although the other characteristics have a greater spread. Building type and tenure have the greatest difference in the proportion of additional direct FTEs and so perhaps they are the characteristics which are more likely to generate additional direct FTEs.

		n	Total population direct FTEs	% Additional Direct FTEs (%)
Building type	Animal housing	7	7.0	62.5
	CS&P	5	5.3	50.0
	Other	10	10.5	25.1
Building size	< 464m^2	9	14.0	37.5
	> 464m^2	8	8.8	40.0
Designation	Listed	14	14.9	41.2
	Unlisted	8	7.9	55.5
SIC	A&FS	10	9.7	27.3
	Manufacturing	5	4.4	60.1
	Other	7	7.0	37.5
Tenure	In-hand	14	14.9	29.4
	Let	8	7.9	66.7

Table 5.17: Additional direct FTEs arising from the conversion works according to the buildings' characteristics: given by proportion of total population direct FTEs

The direct employment effect arising from the economic activities taking place in the converted buildings is shown in Table 5.18. Again, the calculations and assumptions for measuring the number of new FTEs actually created are explained in section 4.3 of chapter four. The building re-use generated more direct employment than the conversion works and the proportion of new FTEs was greater overall for the re-use. The proportion of FTEs which were new was more varied for some characteristics than for others. The proportions of new direct FTEs according to building user indigeneity and length of building occupancy are relatively similar whereas there was more of a difference for business size and tenure FTEs.

		n	Total population direct FTEs	% New direct FTEs (%)
Building type	Animal housing	5	64.0	84.9
	CS&P	5	41.2	65.9
	Other	15	145.4	91.6
Business size (turnover)	< £75,000	14	33.1	60.3
	> £75,000	11	144.7	90.3
User indigeneity	Local	10	70.0	86.2
	Non-local	12	165.8	84.1
Length of occupancy	< 5 years	13	106.8	86.9
	> 5 years	12	143.9	84.8
SIC	A&FS	7	97.3	91.0
	Manufacturing	9	44.0	60.1
	Other	9	109.4	91.2
Tenure	In-hand	12	146.3	91.0
	Let	13	104.4	78.1

Table 5.18: Employment arising from building use according to the buildings' characteristics: given by proportion of total population direct FTEs

Having examined the initial income and expenditure for the conversion works and building re-use, consideration will now be given to the expenditure of the contractors, suppliers and households. Analysing this data will begin to show whether expenditure is re-circulated within the local area, or whether it flows out in further rounds. The contractor data will be discussed first and the focus is on economic activity within the 30 minute drivetime and county areas.

5.3 Subsequent rounds of expenditure

As has been discussed in the previous sections, an initial income injection (round one) led to expenditure on the conversion works (round two) and expenditure in the re-use of the buildings (round two). The focus now moves to the third round of expenditure, which is that of the contractors, suppliers and householders, who received income through the second round of expenditure.

5.3.1 Contractor expenditure

Both the conversion works and the re-use of the buildings involved contractors. However, for the re-use of the buildings the mean proportion of expenditure on contractors was 5.2%, compared to 69.3% for the conversion works. Also, as the 11 participants in the contractor survey were all associated with the conversion works, the contractor expenditure discussion relates exclusively to the conversion works.

The eleven participants in the contractor survey are a small variety of construction industry firms. In terms of SIC class, five firms are classed as construction firms with the other six classed as ‘professional, scientific and technical’. A more detailed breakdown is presented in Table 5.19. The most represented group is the architectural and engineering services group. Along with architect practices, this group includes structural engineering firms and building services engineering firms. All eleven firms are independent and four of them are family-owned. They have been in business for a mean of 21.9 years and 72.7% of them regularly work for the National Trust on a variety of building types. When carrying out work for the National Trust, the contractor firms seldom sub-contract the work and they perform 87.3% of the job themselves. However, work for the National Trust only accounted for a mean of 12.3% of these firms’ revenue. The firms were also asked about revenue from other clients within the 30 minute drivetime area and it was found that a mean of 33.5% of revenue came from other clients within the boundary area. With regard to employment, the firms employ a mean of 7.4 FTEs overall and they employ a mean of 6.1 FTEs from within the 30 minute drivetime area.

SIC group	n	Percentage (%)
Architectural and engineering activities	4	36.4
Building completion and finishing	2	18.2
Construction of buildings	2	18.2
Electrical, plumbing and other construction installation activities	1	9.1
Other professional, scientific and technical activities	2	18.2
Total	**11**	**100.0**

Table 5.19: Contractor survey participants by SIC group

The contractor firms' annual turnover ranged from £50,000 to £3,000,000, with a mean of £862,727.30 and a median of £600,000. The key questions put to the firms were about the proportion of turnover that they spent on supplies (goods and services excluding labour) and where this was spent. Table 5.20 presents this information and it is shown that the majority of supply purchases were not made within the local area. However, it must be noted that these were the general expenditure figures. Of greater importance to this analysis, is the expenditure specifically related to converting traditional rural buildings. Information on contractor activity with regard to traditional rural buildings is presented in Table 5.21. The means have been skewed by a few particularly large expenditure figures and so from the median figures, it is seen that work on traditional rural buildings comprises a relatively small proportion of the contractors' activity and subsequently there is relatively little expenditure on it. In fact, five of the firms reported that if no traditional rural building work had been available over the past ten years, the firm's turnover would definitely have remained the same, while four said it possibly would have remained the same (see Table 5.22). So for these particular firms, the income and expenditure arising from work on traditional rural building conversion projects has not constituted a significant part of their overall income and expenditure.

	n	Minimum (%)	Maximum (%)	Mean (%)
Percentage of turnover spent on supplies	11	5.0	60.0	26.8
Percentage of purchases within the 30 minute drivetime area	11	0.0	95.0	36.8

Table 5.20: Contractor firms' general expenditure on supplies

	n	Minimum (%)	Maximum (%)	Median (%)
Business activity relating to traditional rural buildings	11	5.0	60.0	10.0
Expenditure on supplies relating to traditional rural buildings	11	5.0	60.0	7.5

Table 5.21: Contractor activity with regard to traditional rural buildings

Would turnover remain the same?	n	Percentage (%)
Definitely	5	45.5
Possibly	4	36.4
Probably not	1	9.1
Definitely not	1	9.1
Total	**11**	**100.0**

Table 5.22: Effect on contractor turnover if no work was carried out on traditional rural buildings in the past 10 years

Although expenditure on traditional rural building work accounted for a relatively small proportion of contractor expenditure, its analysis is nevertheless important for assessing the impact of converting the buildings on the local economy. Table 5.23 is derived from the contractors' total expenditure in relation to traditional rural building work and so includes labour as well as goods and services. It is seen that nearly 45% of expenditure is within the 30 minute drivetime area and the majority of expenditure remains within the county. Although these figures are drawn from small proportions of the contractor firms' overall expenditure, it is still an encouraging local economic impact. With regard to job creation, only one of the firms had recruited a new employee specifically for rural traditional building work, but this employee did reside within the 30 minute drivetime area. In addition, this employee had not previously been working within the 30 minute drivetime area, which indicates the creation of an additional local job.

Finally, consideration was also given to whether contractor firm employees had undergone skills training specifically related to traditional rural buildings. The fact that only one firm reported that skills training had taken place implies that the conversion works are not leading to a significant increase in traditional rural building work skills for these firms. The discussion will now switch to the supplier surveys and again the analysis is focused primarily on the local economic activity.

	n	Minimum (%)	Maximum (%)	Mean (%)
Percentage of expenditure within the 30 minute drivetime area	8	0.0	86.0	44.8
Percentage of expenditure within the rest of the county	8	36.0	86.0	65.6

Table 5.23: Location of contractor expenditure for traditional rural building work: given by percentage of total expenditure

5.3.2 Supplier expenditure

A mean of 69.3% of conversion works expenditure and a mean of 36.3% of building re-use expenditure was made on supplies. There were eleven participants in the supplier surveys: two suppliers to conversion works and nine suppliers to building re-use. The suppliers' average annual turnover ranged from £300 to £13,000,000, with a mean of £3,352,300 and a median of £1,500,000. The mean proportion of sales by value within the 30 minute drivetime area was 48.9% and the mean proportion of turnover spent on goods and services, excluding labour, was 53.6%. When sourcing goods and services, the suppliers purchased 21.3% from within the 30 minute drivetime area. The SIC classes of the suppliers are presented in Table 5.24, where it can be seen that the majority were manufacturing firms followed by wholesale and retail trade firms.

SIC	n	Percentage
Agriculture, forestry and fishing	2	18.2
Manufacturing	6	54.5
Wholesale and retail trade	3	27.3
Total	**11**	**100.0**

Table 5.24: Supplier SIC classes

The key information regarding local economic impact is the location of supplier expenditure and where supplier employees come from. This information is presented in Tables 5.25. It is seen that the majority of supplier expenditure is not made within the 30 minute drivetime area or county. Therefore after reaching local suppliers expenditure starts to flow out of the local economy. With regards to employment, the suppliers employed a mean of 15.4 FTEs, with a mean of 13.0 FTEs residing within the 30 minute drivetime area. These figures imply that the proportion of local employees within supplier firms is relatively high and so it is likely that wages paid by suppliers flow into the local economy.

	n	Minimum (%)	Maximum (%)	Mean (%)
Percentage of expenditure within the 30 minute drivetime area	11	0.0	84.0	32.7
Percentage of expenditure within the rest of the county	11	3.0	84.0	37.1
Total FTEs	11	3.5	41.2	15.4
FTEs residing within the 30 minute drivetime area	11	0.9	41.2	13.0

Table 5.25: Supplier expenditure and employment within the 30 minute drivetime area and county: given by percentage of total expenditure

5.3.3 Householder expenditure

This section considers the householder surveys, which collected data on the expenditure of the individuals involved in converting and re-using the buildings, as well as individuals employed by the contractor and supplier firms. A total of 75 householder surveys were completed and a breakdown is given in Table 5.26. As with the conversion works and building re-use surveys, the analysis of the householder surveys focused on where expenditure is made and how this varied according to different factors. In the case of householders, these factors were the location of the building being converted or re-used and the social classification of the householder.

	National Trust staff	National Trust tenants	Contractors	Suppliers	Total
Conversion works	4	3	11	2	**20**
Building re-use	28	17	0	10	**55**
Total	**32**	**20**	**11**	**12**	**75**

Table 5.26: Frequencies of householder categories for the conversion works and building re-use surveys

As can be seen in Table 5.27, food, clothing, durables and services account for the largest proportion of the householders' monthly expenditure and so the analysis will focus on where expenditure on these items is made.

Conversion works		
Expenditure	**n**	**Mean (%)**
Food, clothing, durables and services	20	30.4
Household bills	20	16.9
Income tax and National Insurance	20	26.6
Loans and savings	20	7.7
Rent or mortgage	20	16.2
Building re-use		
Expenditure	**n**	**Mean (%)**
Food, clothing, durables and services	55	32.8
Household bills	55	15.6
Income tax and National Insurance	55	17.9
Loans and savings	55	10.7
Rent or mortgage	55	21.2

Table 5.27: Monthly expenditure by householders: given by percentage of total monthly expenditure

All those who completed the household survey resided within the 30 minute drivetime area or county. Table 5.28 presents an analysis of their expenditure on food, clothing, durables and services within various geographic boundaries. Over three quarters of the household expenditure for the conversion works fell within the 30 minute drivetime area and some householders sourced all of these items within this boundary. The remainder of the expenditure is split between internet/mail order and locations beyond the 30 minute drivetime and county boundaries.

Conversion works				
Location of expenditure	**n**	**Minimum (%)**	**Maximum (%)**	**Mean (%)**
30 minute drivetime area	20	0.0	100.0	77.2
County	20	0.0	100.0	10.8
Elsewhere	20	0.0	60.0	7.1
Internet/mail order	20	0.0	30.0	4.8
Building re-use				
Location of expenditure	**n**	**Minimum (%)**	**Maximum (%)**	**Mean (%)**
30 minute drivetime area	55	0.0	100.0	72.3
County	55	0.0	43.8	4.8
Elsewhere	55	0.0	72.5	11.8
Internet/mail order	55	0.0	58.8	9.1

Table 5.28: Location of household expenditure on food, clothing, durables and services: given by percentage of total expenditure

For the building re-use, nearly three quarters of the household expenditure is made within the 30 minute drivetime area. Again, some householders sourced 100% of their food, clothing, durables and services within the 30 minute drivetime area and if these items could not be sourced there, householders travelled beyond the 30 minute drivetime and county boundaries. 96.4% (n = 55) of the householders lived within the 30 minute drivetime area and county of the building in which they worked.

Consideration will now be given to how the location of expenditure varied according to householder social classification. The householders were classified according to the National Statistics Socioeconomic Classification (NS-SEC), as developed and used by the UK Office of National Statistics (ONS) (Office for National Statistics 2001). The three-class version of the NS-SEC was used for simplicity and the analysis is presented in

Table 5.29. It should be noted that no conversion works householder from NS-SEC Class III completed the householder survey. For both the conversion works and building re-use, the majority of expenditure on food, clothing, durables and services was typically made within the 30 minute drivetime area and county. It is also observed that householders from the lower NS-SEC Classes had greater proportions of expenditure within the local economy than the higher NS-SEC Class householders. These figures therefore imply that the bulk of wages received by householders associated with the conversion works and building re-use are being spent within the local economy.

A further analysis was also carried out for the householders who used the converted buildings in relation to the location of their expenditure according to their place of residence. The householders involved in converting the buildings all resided within the 30 minute drivetime area of the buildings but some householders who used the buildings resided beyond the 30 minute drivetime and county areas. The location of expenditure according to the place of residence of the householders who used the converted buildings is presented in Table 5.30. The majority of householders did reside within the 30 minute drivetime area of the building which they re-used and the majority of their expenditure occurred within that area also. For the householders who resided elsewhere in the county, there was a greater difference in expenditure between the 30 minute drivetime area and the county, but this is to be expected given that these householders resided beyond the 30 minute drivetime area. Also, as expected, the householders who resided beyond the 30 minute drivetime area and county boundaries had the smallest proportion of expenditure within these boundaries. The implication for the local economic impact analysis is that if the buildings are re-used by householders who reside within the 30 minute drivetime area, then there is likely to be a greater proportion of household expenditure within the 30 minute drivetime area.

Conversion works					
NS-SEC class	**n**	**Mean expenditure 30 minute drivetime area (%)**	**Mean expenditure county (%)**	**Mean expenditure Elsewhere (%)**	**Mean expenditure internet/mail order (%)**
I Higher managerial, administrative and professional occupations	14	72.5	87.5	9.2	3.8
II Intermediate occupations	6	88.2	89.8	2.3	7.1
Building use					
NS-SEC class	**n**	**Mean expenditure 30 minute drivetime area (%)**	**Mean expenditure county (%)**	**Mean expenditure Elsewhere (%)**	**Mean expenditure internet/mail order (%)**
I Higher managerial, administrative and professional occupations	20	67.2	72.1	14.6	11.0
II Intermediate occupations	25	74.2	77.0	11.3	9.3
III Routine and manual occupations	10	77.9	87.6	7.8	4.6

Table 5.29: Location of expenditure on food, clothing, durables and services by householders according to NS-SEC class: given by percentage of total expenditure

Residence	n	Mean expenditure 30 minute drivetime area (%)	Mean expenditure county (%)	Mean expenditure elsewhere (%)	Mean expenditure internet/mail order (%)
30 minute drivetime area	50	77.3	81.7	8.7	8.0
County	3	34.6	50.0	25.8	16.7
Elsewhere	2	5.6	5.6	68.8	25.6

Table 5.30: Location of expenditure on food, clothing, durables and services according to place of residence of the householders who re-used the converted buildings: given by percentage of total expenditure

5.4 Conclusion

This chapter has presented a descriptive analysis relating to the expenditure arising from the conversion works, the building re-use and the householders connected with each of these. It is useful to conclude by stating the characteristics which were seen to be associated with greater economic impact, particularly within the 30 minute drivetime area of the buildings.

5.4.1 Conversion works

The conversion of let buildings had a higher expenditure within the 30 minute drivetime area than the conversion of in-hand buildings. Converting CS&P buildings had the highest expenditure in the 30 minute drivetime area and converting other building types generated the lowest local expenditure. The conversion of the smaller buildings, in terms of gross internal floor area, generated the highest proportion of local expenditure. Conversion works for the unlisted buildings had the highest proportion of expenditure within the 30minute drivetime area but converting the listed buildings generated a greater proportion of expenditure within the county. With regards to SIC classification, converting a building for manufacturing had the highest proportion of expenditure within the 30 minute drivetime area and county. The characteristics associated with creating more additional local FTE jobs were building type and tenure.

5.4.2 Building re-use

The re-use of let buildings had the highest expenditure within the 30 minute drivetime area and the building users who were not local also had a greater proportion of expenditure within the 30 minute drivetime area. Building users who have occupied the building for less than 5 years and businesses with an average annual turnover of less than £75,000 were also found to have higher expenditure within the 30 minute drivetime area, along with those businesses which employed fewer than 5.3 FTEs. With regard to building type, the re-use of the animal housing buildings had the greatest expenditure within the 30 minute drivetime area. With regards to SIC classification, it was the buildings that were re-used for manufacturing which had the highest expenditure within the 30 minute drivetime area. Finally, with regards to creating new FTE jobs within the local economy, the characteristics associated with higher job creation were SIC class and business size (by turnover).

5.4.3 Contractors and suppliers

Overall, the mean proportion of expenditure by contractors working on traditional rural working buildings within the 30 minute drivetime and county boundaries was 44.8% and 65.6% respectively. The suppliers' general proportion of expenditure figures was lower at 32.7% and 37.7% for 30 minute drivetime and county boundaries respectively.

5.4.4 Householder

With regard to the conversion works, householders averaged 77.2% expenditure within the 30 minute drivetime area on food, clothing, durables and services. In terms of NS-SEC class, it was those in intermediate occupations (Class II) that averaged the highest proportion of expenditure within the 30 minute drivetime area. Householders re-using the converted buildings averaged 72.3% of their expenditure within the 30 minute drivetime area on food, clothing, durables and services. The routine and manual occupations (Class III) had the greatest local economic impact and higher managerial, administrative and professional occupations (Class I) had the least local impact.

CHAPTER 6

LOCAL ECONOMIC IMPACTS OF THE CONVERSION AND RE-USE OF TRADITIONAL RURAL WORKING BUILDINGS: ECONOMIC MULTIPLIER ANALYSIS

6.0 Introduction

The purpose of this chapter is to fulfil one of the main objectives of the project: to examine the local economic impacts of the conversion and re-use of traditional rural working buildings, encompassing the direct, indirect and induced effects. This is achieved through an empirical analysis, using LM3 modelling, of the spatial expenditure and employment data obtained via the surveys. The LM3 modelling seeks to produce income and employment multipliers which are indicators of the strength of local economic linkages. It begins with examining the effects of the conversion works and then moves on to the effects of the use of the buildings. The conversion works effects are examined in relation to selected characteristics of the building which are: building type, building size, designation, the SIC class for the re-use of the building and the tenure of the building. The building re-use effects are also examined in relation to selected characteristics of the building and also of the re-use activity. These characteristics are: building type, the SIC class of the re-use activity, the length of occupancy of the current user, the tenure of the building, the size of the current user's business and the indigeneity of the current user. The results illustrate the extent of income generation and job creation arising from the re-use and such economic effects arise through the local economic linkages within the area defined as the local economy. The chapter concludes with a discussion of the development of the toolkit with the National Trust.

6.1 Local economic impacts of the conversion works

This section presents the results of the LM3 modelling analysis for the conversion works. The results for each building characteristic are discussed first and then there is a summary of the building characteristics that demonstrated the strongest local economic linkages. The income and employment multipliers are presented as a range of indices, rather than as a single figure[11]. Therefore, the total income generation and job creation figures for the local economy are also stated as ranges, as these figures are derived from the multipliers. It should be noted that the total income generation and job creation figures

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[11] See Section 4.3.3 of Chapter 4 for explanation

stated are exclusive to the particular conversion works projects which were studied. These figures will vary according to the initial injection and direct job creation for any given conversion works project.

6.1.1 Building type

The income and employment multipliers for each building type are presented in Table 6.1, along with the total income generation and job creation figures. The conversion of animal housing buildings gave rise to the highest income multipliers for both the 30 minute drivetime area and the county and it is important to understand the factors which led to this. From the LM3 models, it is evident that the main factor is the difference between the initial expenditure by the National Trust or tenant and the expenditure by the contractors and suppliers. For the conversion of animal housing buildings the mean proportion of expenditure falling within the 30 minute drivetime and county areas by the National Trust or tenant are 12.0% – 14.0% and 12.0% – 15.0% respectively. For the contractor and supplier expenditure, the figures are 10.0% – 12.0% and 10.0% – 13.0%. For the conversion of CS&P and ‘other’ building types, the drop in the mean proportions of expenditure in the 30 minute drivetime area and county between the point of the National Trust or tenant expenditure and the contractor and supplier expenditure is greater. Therefore, the overall effect of the expenditure by the National Trust, tenants, contractors and suppliers is smaller for the conversion of these building types, which in turn contributes to their smaller income multipliers.

A difference in the household expenditure also accounts for the difference in income multipliers. Although there is a greater expenditure on wages by contractors and suppliers involved in converting animal housing buildings, the mean proportions of expenditure within the 30 minute drivetime area and county for households is broadly similar for the conversion of all the building types. This results in the conversion of animal housing buildings having the highest householder effect as well as the highest effect from the National Trust, tenants, contractors and suppliers. The conversion of the ‘other’ building types has a higher initial injection figure (£14.9m versus the £7.9m for the conversion of animal housing buildings) but the LM3 modelling serves to illustrate how an activity with a higher initial financial injection does not necessarily generate a higher income multiplier.

30 minute drivetime area					
Building type	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Animal housing	7	1.75 – 2.34	1.74 – 1.90	12.40 – 18.43	6.89 – 8.33
Crop storage and processing (CS&P)	5	1.49 – 1.67	1.56 – 1.61	1.49 – 1.85	3.30 – 4.23
Other	10	1.22 – 1.34	1.75 – 2.06	16.32 – 19.91	4.17 – 5.44
County					
Building type	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Animal housing	7	1.82 – 2.63	1.91 – 2.15	12.84 – 20.64	7.55 – 9.46
Crop storage and processing (CS&P)	5	1.60 – 2.26	1.56 – 1.61	1.59 – 2.50	3.30 – 4.23
Other	10	1.37 – 1.60	2.03 – 2.46	18.32 – 23.82	4.84 – 6.51

Table 6.1: Conversion works income and employment multipliers according to building type

With regards to the employment multipliers, it is the conversion of the ‘other’ building type which has the highest employment multipliers for the 30 minute drivetime area and county. Converting the animal housing buildings produced the greatest number of direct, indirect and induced FTEs amongst the three building types, but the resulting employment multiplier range is smaller than the range for the ‘other’ building type. This happens because of the relationship between the number of direct FTEs and the sum of the indirect and induced FTEs. In the LM3 employment multiplier calculation, the direct FTE effect is cancelled out as it is in both the numerator and denominator. Therefore, the greater the proportion of the total FTEs accounted for by direct FTEs, the greater the proportion of the employment effects that are cancelled out in the multiplier calculation. For example, at the higher end of the 30 minute drivetime employment multiplier range the direct FTEs from the conversion of animal housing buildings account for 53.0% of the total FTEs created, whereas for the conversion of the ‘other’ building types the direct FTEs account for only 48.1% of the total FTEs created. Thus, a higher proportion of the employment effect is effectively cancelled out for the conversion of animal housing buildings which results in a lower employment multiplier range.

6.1.2 Building size

The income and employment multipliers for the conversion works according to the buildings' floor area are presented in Table 6.2. It is evident that converting the buildings with a floor area less than the median of 464m^2 generated higher income and employment multipliers in both the 30 minute drivetime area and county. With regards to the income multipliers, the key difference between the two floor area groups lies in the expenditure by the National Trust and tenants on contractors and supplies. This expenditure for converting the smaller buildings averages 19.0% - 23.0% and 20.0% - 24.0% within the 30 minute drivetime area and county respectively, whereas the equivalent figures for the larger buildings are 6.0% - 8.0% and 13.0% - 15.0%. The contractor and supplier expenditure and the householder expenditure are similar for the two groups. Of course, these figures do not show why there was a greater proportion of expenditure on locally sourced contractors and supplies for converting the smaller buildings, but as discussed in chapter five, the National Trust and tenants stated that a contractor's reputation and cost ranked more important than whether they were a local firm. Thus, when converting the larger buildings, competitively priced and highly regarded contractors were perhaps less available within the 30 minute drivetime area and county.

Converting the smaller buildings also generated the higher employment multipliers and this is due to the higher indirect effects of these conversion works. The proportion of expenditure on supplies by the National Trust and the tenants (Indirect income effects I) and by the contractors and suppliers (Indirect income effects II) is greater for the smaller buildings. Therefore, the indirect and induced FTEs created comprise a greater proportion of the total FTEs created, resulting in higher employment multiplier ranges.

30 minute drivetime area					
Gross internal floor area	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
< 464m^2	14	1.45 – 1.69	1.60 – 1.82	5.48 – 7.10	7.61 – 9.57
> 464m^2	8	1.06 – 1.10	1.35 – 1.47	18.72 – 21.57	4.27 – 5.15
County					
	n	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
< 464m^2	14	1.56 – 2.04	1.65 – 1.88	5.89 – 8.55	7.84 – 9.93
> 464m^2	8	1.21 – 1.37	1.54 – 1.75	21.37 – 26.93	4.87 – 6.14

Table 6.2: Conversion works income and employment multipliers according to building size (floor area)

6.1.3 Designation

It might be assumed that the specialist skills and materials required for work on listed buildings are less likely to be locally available and therefore the conversion of listed buildings will have lower income and employment multiplier effects. However, as Table 6.3 shows, the conversion of the listed buildings tended to generate the higher multipliers. Beginning with the income multipliers, the models show that it is the proportions of expenditure on individual items within the first two rounds of expenditure that account for the difference in income multipliers. Overall, the average proportions of expenditure within the two boundaries are similar, but drilling down into these figures reveals differences within the indirect effects. The key difference is found in terms of the contractor and supplier expenditure. The majority of National Trust and tenant expenditure on Listed and unlisted building conversion works (Indirect effects I) is on contractors and the majority of these contractors are based within the 30 minute drivetime area or county. However, subsequent expenditure by these contractors leads to differences in income multipliers between building designations. The main expenditure items for the contractors and suppliers associated with the conversion of listed buildings are raw materials, staff wages and sub-contractors. The typical proportions of expenditure on these items within the local economy are 11.0% – 14.0%, 50.0% - 62.0% and 4.0% - 10.0% respectively. For converting unlisted buildings, the contractors and suppliers have a similar overall level of expenditure on raw materials but much less is spent on staff wages and sub-contractors. A relatively smaller proportion of the staff wages expenditure occurs within the local economy and virtually none of the other expenditure is local. As a result, the sum of the Indirect and Induced effects as a proportion of the total income effects is higher for converting the listed buildings (35.5% - 42.7%) compared to the conversion of the unlisted buildings (25.9% - 29.7%). Therefore, the conversion of the listed buildings generates the higher income multipliers.

The conversion of the listed buildings also produces the higher employment multipliers and this too is a result of the expenditure by contractors and suppliers. The relatively higher level of local expenditure by the contractors and suppliers for the conversion of the listed buildings, leads to the creation of more indirect and induced FTEs than for the conversion of unlisted buildings. In turn, this means that the sum of the indirect and induced FTEs is a higher proportion of the total number of FTEs created in the conversion of the Listed Buildings (49.5% - 58.2% versus 20.0% - 21.4%) and so the LM3 equation results in higher employment multipliers for the conversion of listed buildings.

Taking designation as a proxy for historical significance, examining the multipliers according to the buildings' designation brings together the intrinsic and instrumental values of the buildings to show the impact of re-use on overall heritage value. Given that the conversion of the listed buildings generates the greater income and employment multipliers, it can be said that the listed buildings have the greater instrumental value as well as the greater intrinsic value.

30 minute drivetime area					
Designation	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Listed	14	1.38 – 1.55	1.98 – 2.39	26.16 – 32.72	10.94 – 14.65
Unlisted	8	1.29 – 1.36	1.26 – 1.29	3.26 – 3.82	4.96 – 5.63
County					
Designation	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Listed	14	1.47 – 1.76	2.21 – 2.73	27.89 – 37.02	12.24 – 16.77
Unlisted	8	1.43 – 1.68	1.26 – 1.29	3.64 – 4.73	4.96 – 5.63

Table 6.3: Conversion works income and employment multipliers according to building designation

6.1.4 SIC class

Turning now to the SIC use for which the buildings are being converted, it can be seen from Table 6.4 that converting buildings for the manufacturing sector has the highest income multipliers and that converting buildings for the 'Other' sector has the highest employment multipliers. The income multipliers are greatest for the manufacturing conversions because these projects have the highest average proportions of local expenditure by the National Trust, tenants, contractors and suppliers. For the National Trust and tenants, 21.6% – 25.0% of expenditure occurs within the 30 minute drivetime area and county when converting buildings for the manufacturing sector and the equivalent figure for contractors and suppliers is 16.0% – 20.0% within both boundaries.

Given that converting buildings for the manufacturing sector has the highest proportions of expenditure within the local economy, one might expect that converting buildings for the manufacturing sector would also generate the highest local employment multipliers. However, the result of the employment multiplier calculation depends on what the expenditure is on as well as where the expenditure occurs. Although the conversions for manufacturing have a higher proportion of expenditure within the local economy, more of this expenditure is on wages rather than supplies. Therefore converting buildings for the 'Other' SIC sector has the highest employment multipliers because it has a greater local expenditure on supplies. This demonstrates that simply having a greater overall local expenditure, as is the case for the manufacturing conversions, does not automatically generate the greater employment multiplier.

30 minute drivetime area					
SIC	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Accommodation & food services (A&FS)	8	1.35 – 1.48	1.15 – 1.17	25.28 – 30.71	2.72 – 3.08
Manufacturing	5	1.59 – 2.11	1.15 – 1.16	0.20 – 0.29	2.73 – 3.06
Other	7	1.24 – 1.48	1.79 – 2.12	3.37 – 4.46	4.24 – 5.57
County					
SIC	**N**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Accommodation & food services (A&FS)	8	1.51 – 1.81	1.53 – 1.72	28.15 – 37.44	3.63 – 4.53
Manufacturing	5	1.64 – 2.45	1.15 – 1.16	0.21 – 0.34	2.73 – 3.06
Other	7	1.36 – 1.70	1.97 – 2.38	3.68 – 5.12	4.67 – 6.26

Table 6.4: Conversion works income and employment multipliers according to the SIC class for which the building is being converted

6.1.5 Tenure

The expenditure according to the buildings' tenure was modelled to see whether converting the National Trust's in-hand buildings or converting the buildings let to tenants generated the higher multipliers. The results are presented in Table 6.5 and the income multipliers are particularly interesting. For the 30 minute drivetime area, the income multipliers arising from converting the let buildings have a much greater range than the multipliers arising from the in-hand conversion works. At the county level, the multipliers from converting the let buildings are again wider ranging than the in-hand conversion works multipliers. However, this time the upper end of the in-hand conversion works multiplier range is greater than the upper end of the multiplier range for the let building conversions works. The importance of the sensitivity analysis is evident here and a closer look at the models is certainly required. For the 30 minute drivetime area, the Indirect effects I (National Trust and tenant expenditure) are slightly greater for the let building conversion works and the differences become more evident at the Indirect effects II (contractors and supplier expenditure) level. The contractors and suppliers for the in-hand conversion works purchase a greater variety of goods and services within the 30 minute drivetime area, but their average proportion of expenditure in this area was 7.0% - 9.0% compared to the 16.0% - 20.0% for the contractors and suppliers for the let building conversion works. The conversion works on the let buildings also generates higher induced effects (householder expenditure) within the 30 minute drivetime area, with the average proportion of expenditure being 69.0% – 86.0% compared to 59.0% – 74.0% for the in-hand conversion works.

The income multipliers for the county boundary are greater for the in-hand works and they are an improvement on the in-hand conversion works multipliers for the 30 minute drivetime area. However, the county income multipliers from converting the let buildings remain virtually unchanged from the equivalent multipliers for the 30 minute drivetime area. In the models, the indirect and induced income effects for the in-hand building works all increase from the 30 minute drivetime area to the county. This gives the in-hand building works the same Indirect effect I (National Trust and tenant expenditure) as the works on the let buildings and it gives stronger induced effects for the in-hand building works. Although the contractor and supplier expenditure also increases for the in-hand building works, the let works still retain a stronger county impact due to their significantly stronger impact in the 30 minute drivetime area. However, the indirect and induced effects for the in-hand building works increase enough to give higher multipliers at the county level.

The difference in the employment multipliers for the in-hand and let conversion works is more pronounced than the difference in the income multipliers and the key factor is the contractor and supplier expenditure. Although the National Trust and tenant proportion of total expenditure on supplies is 33.0% for the let building works and just 2.0% for the in-hand building works, the contractors' and suppliers' proportion of total expenditure on supplies for the let building works is only 1.0% compared to 48.0% for the in-hand building works. So, despite the higher proportions of local expenditure on supplies by the National Trust and tenants for converting the let buildings, the in-hand building works generate greater indirect and subsequently induced employment effects because of the greater proportion of local expenditure by the contractors and suppliers.

30 minute drivetime area					
Building tenure	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
In-hand	14	1.30 – 1.41	1.79 – 2.10	27.60 – 32.72	7.05 – 9.20
Let	8	1.05 – 1.60	1.12 – 1.12[12]	0.31 – 0.52	5.28 – 5.89
County					
Building tenure	**N**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
In-hand	14	1.45 – 1.68	2.20 – 2.69	30.80 – 39.09	8.68 – 11.79
Let	8	1.06 – 1.62	1.12 - 1.12	0.31 – 0.52	5.28 – 5.89

Table 6.5: Conversion works income and employment multipliers according to the buildings' tenure

6.2 Local economic impacts of building re-use

This section presents the results of the LM3 modelling analysis of the income and employment effects of re-using the converted buildings. As for the conversion works, the results for each building characteristic will be discussed and then there will be a summary of the characteristics associated with the strongest local economic linkages. The income and employment multipliers will continue to be stated as a range of multipliers, as will the figures for the total income generation and total job creation within the local economy. Again, the total income generation and job creation figures stated are exclusive to the particular building uses which were studied. However, for the building re-use these figures will vary according to the attributable turnover and direct job creation for any given building use, whereas for the conversion works the total income generation and job creation vary according to the initial financial injection from the National Trust, plus any grants received. The key difference in the LM3 analyses for the conversion works and the re-use of the buildings is the first round or direct effect. For the conversion works, it is the source(s) of funding for the works and for the re-use of the buildings it is the proportion of turnover that is attributable to the business activity taking place within a converted traditional rural working building. It should be noted that the turnover from 5 out of the 25

[12] The sensitivity analysis did not generate a range of multipliers for the let building works employment effect in either the 30 minute drivetime area or county. This suggests that there was relatively little overestimation in the supply expenditure data.

buildings was not attributable to the activity taking place within a converted traditional rural working building and so these buildings are not included in the LM3 analysis[13].

6.2.1 Building type

As shown in Table 6.6, the re-use of animal housing buildings generated the higher income multipliers for the 30 minute drivetime area and county than the re-use of the other two building types. Results from the LM3 models show that the two contributing factors are the Indirect effects I (National Trust and tenant expenditure) and the Induced effects (householder expenditure). The re-use of animal housing buildings generated the highest average proportion of expenditure overall in the 30 minute drivetime area and county. These figures are driven particularly by the proportion of local expenditure on raw materials and staff wages. In the re-use of animal housing buildings, the average proportion of expenditure on raw materials in the 30 minute drivetime area and county is 79.9% – 94.0% and the average proportion of expenditure on staff wages in the 30 minute drivetime area and county is 53.5% – 63.0%. Given that the bulk of the overall expenditure from the re-use of animal housing buildings comprises of expenditure on raw materials and staff wages, it is not surprising that there was a high level of local expenditure. The re-use of animal housing buildings also had the greatest induced effect, with the average proportion of household expenditure in the 30 minute drivetime area and county being 70.0% – 88.0% and 72.6% – 91.0% respectively. In summary, a combination of National Trust and tenant expenditure and householder expenditure resulted in the re-use of animal housing buildings generating the highest local income multipliers among the various building types.

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[13] See Chapter 4 Section 4.3.2 on page 31

30 minute drivetime area					
Building type	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Animal housing	4	1.74 – 2.49	1.13 – 1.13	1.11 – 1.77	55.13 – 61.49
Crop storage and processing (CS&P)	4	1.34 – 1.50	1.14 – 1.15	0.72 – 0.89	27.83 – 31.14
Other	12	1.38 – 1.55	1.10 – 1.10	0.95 – 1.19	132.26 – 147.05
County					
Building type	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Animal housing	4	1.79 – 2.91	1.13 – 1.13	1.15 – 2.07	55.13 – 61.49
Crop storage and processing (CS&P)	4	1.37 – 1.57	1.14 – 1.15	0.73 – 0.93	27.89 – 31.22
Other	12	1.45 – 1.67	1.10 – 1.11	1.00 – 1.29	132.36 – 147.19

Table 6.6: Building re-use income and employment multipliers according to building type

The building re-use employment multipliers according to building type are much closer for the three building types than the income multipliers are. It is seen from Table 6.8 that the re-use of the CS&P buildings generated the highest local employment multipliers but they are not much greater than the multipliers generated by the re-use of the other two building types. The re-use of the former CS&P buildings actually created the least number of direct and induced FTEs among the three building types, but the important point for the employment multiplier calculation is the relationship between the direct and indirect FTEs. The direct FTEs are in both the numerator and denominator of the employment multiplier calculation and so their effect is essentially cancelled out in the equation. Therefore, the relationship between the direct and indirect FTEs, when summed, is what determines the size of the multiplier. Even though the re-use of the CS&P buildings did not generate the most direct, indirect, or induced FTEs, the indirect FTEs generated by the re-use of the CS&P buildings are proportionally greater in the sum of direct and indirect FTEs. The indirect FTEs as a proportion of the sum of the direct and indirect FTEs for the re-use of the CS&P buildings are 3.2% – 3.9% for the 30 minute drivetime area and 3.5 – 4.2% for the county. The equivalent figures for the re-use of the animal housing buildings are 2.2%

– 2.7% for both boundaries and the figures for the re-use of the 'other' building types are 0.3% – 0.4% and 0.4% – 0.5% for the 30 minute drivetime area and county respectively. Therefore, it is the re-use of the CS&P buildings that generated the highest employment multipliers of the three building types because of the indirect FTEs being a greater proportion of the sum of the direct and indirect FTEs.

6.2.2 Business size (turnover)

LM3 models were produced for the two business size groups and the results are shown in Table 6.7. The key result is that the higher turnover group generated the higher income and employment multipliers in both boundary areas. One might automatically assume that a higher turnover will result in higher income and employment, but of course this depends on the spatial dimension of the business expenditure. In this case, it is the businesses with the higher turnover that are more closely tied to the immediate locality in terms of their purchasing activity. In particular, the higher turnover group had large proportions of local expenditure on inputs (74.8% – 88.0% for both boundaries) and staff wages (51.0% – 60.0% for both boundaries). This local expenditure by the building user was built upon by their suppliers, who also had large proportions of local expenditure, particularly on staff wages (77.6% – 97.0% for both boundaries) and 'other' expenditure (45.6% – 57.0% for both boundaries). Furthermore, the higher turnover group had a stronger induced effect with the average proportion of household expenditure in the 30 minute drivetime area and county being 67.6% – 85.0% and 70.6% – 88.0% respectively. The figures for the lower turnover group are 45.8% – 57.0% and 51.2% – 64.0%. The income effect of the businesses with higher turnover is therefore stronger, resulting in higher income multipliers than for the businesses with lower turnover.

The businesses with higher turnover also generated greater employment multipliers than those with a lower turnover, but the gap is narrower than for the income multipliers. The higher turnover group created six and a half times more direct FTEs in the 30 minute drivetime area and county than the lower turnover group, but more importantly the higher proportion of local expenditure on supplies by the businesses with higher turnover and their suppliers generated enough indirect FTEs to produce a higher employment multiplier. In this instance, it is the building re-use characteristic with the greatest number of direct, indirect and induced FTEs which generated the higher employment multiplier, but again the important factor is the ratio of direct FTEs to indirect FTEs. The local expenditure on supplies by businesses in the higher turnover group creates more indirect FTEs per direct FTEs and so produces a higher employment multiplier than the lower turnover businesses.

30 minute drivetime area					
Turnover	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
< £75,000	12	1.30 – 1.40	1.10 – 1.10	0.15 – 0.18	19.82 – 22.03
> £75,000	8	1.64 – 2.20	1.13 – 1.14	2.86 – 4.26	132.99 – 148.51
County					
Turnover	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
< £75,000	12	1.37 – 1.50	1.10 – 1.11	0.16 – 0.19	19.83 – 22.05
> £75,000	8	1.67 – 2.45	1.13 – 1.14	2.92 – 4.76	132.99 – 148.51

Table 6.7: Building re-use income and employment multipliers according to building users' business size (turnover)

6.2.3 Indigeneity

The indigeneity LM3 models were made to examine whether income and employment multipliers varied according to the indigeneity of the building users to the local area. The results of the models are shown in Table 6.8 and the re-use of the converted buildings by non-local people generated the higher income multipliers, whereas the higher employment multipliers came from the building users who were local. The key factor leading to the higher income multipliers for the non-local building users is the National Trust and tenant expenditure. The average proportion of expenditure in the 30 minute drivetime and county area for the non-local building users was 18.0% – 21.0% and 21.0% – 25.0% respectively. The figures for the local users were 15.4 – 18.0% and 18.7% – 22.0%. The main items of local expenditure for the non-local building users were staff wages and raw materials. With regard to the supplier expenditure, the non-local building users had the higher average proportion of expenditure in the 30 minute drivetime area, but the building users who were local had the higher figure for the county and the two balance each other out. The local users also had the higher induced effect, with the average proportion of expenditure in the 30 minute drivetime area and county being 65.0% – 81.0%. The figures for the non-local users were 53.4% – 67.0% for the 30 minute drivetime area and 58.4% – 73.0% for the county. However, this was not enough to counter the expenditure effect of the non-local National Trust staff and tenants and so the local users' activity produced the higher income multipliers.

The difference in the employment multipliers for the local and non-local building users is much less than for the income multipliers and it is the local users who generated the higher multipliers. The number of direct and induced FTEs created is higher for the non-local users but crucially the indirect FTEs as a proportion of the sum of the direct and indirect FTEs was greater for the local users. Specifically, the figures for the local users were 1.3% – 1.5% for the 30 minute drivetime area and 1.5% – 1.6% for the county. This is compared to the non-local users' figures of around 0.5% for the 30 minute drivetime area and 0.5% – 0.6% for the county. Despite creating fewer FTEs in total, the local users generated a higher employment multiplier than the non-local users.

30 minute drivetime area					
Indigeneity	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Local	9	1.33 – 1.56	1.11 – 1.12	1.12 – 1.46	60.47 – 67.37
Non-local	8	1.47 – 1.67	1.10 – 1.11	0.89 – 1.12	138.69 – 154.24
County					
Indigeneity	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Local	9	1.37 – 1.62	1.12 – 1.12[14]	1.15 – 1.52	60.56 – 67.49
Non-local	8	1.52 – 1.78	1.11 – 1.11	0.92 – 1.20	138.71 – 154.27

Table 6.8: Building re-use income and employment multipliers according to the building users' indigeneity to the local area

6.2.4 Length of occupancy

The income and employment multipliers according to the length of time that the user has occupied the building are shown Table 6.9 and the multipliers are very similar. With regard to the income multipliers, the length of occupancy with the higher multiplier will depend on

[14] The sensitivity analysis showed little variation in the employment multipliers for the county.

how prudently one reads the multiplier ranges. The lower ends of the income multiplier ranges suggest that the longer occupancy users generated the higher income multipliers but the upper ends of the ranges are stronger for the shorter occupancy period users. This suggests that the users from the two occupancy periods dominated different parts of the models. Looking at the National Trust and tenant expenditure, it is evident that the longer occupancy period users dominated, particularly at the county level. The average proportions of expenditure for the longer occupancy period users in the 30 minute drivetime area and county were 17.0% – 20.0% and 25.2% – 30.0% respectively. The equivalent figures for the shorter occupancy period users were 15.6% – 18.0% and 16.9% – 20.0%. The difference for the county is especially clear. With regards to the contractor and supplier expenditure, the shorter occupancy period users had the greater proportions of local expenditure. The average proportions of expenditure for these users were 18.0% – 23.0% for the 30 minute drivetime area and 18.7% – 23.0% for the county. The figures for the longer occupancy period users were 12.8% – 16.0% and 16.0 – 20.0% and the more noticeable difference is in the 30 minute drivetime area figures. The shorter occupancy period users also had the stronger induced effects. The householders' average proportions of expenditure were 65.2% – 82.0% for the 30 minute drivetime area and 67.8% – 85.0% for the county. The householder expenditure figures for the longer occupancy period were lower, with 51.0% – 64.0% for the 30 minute drivetime area and 56.2% – 70.0% for the county. However, despite the greater contractor, supplier and householder expenditure for the shorter occupancy period, the longer occupancy period's greater overall indirect effects resulted in the observed similarity of the income multipliers.

The employment multipliers for the two occupancy periods are almost the same and they are low in terms of the LM3 multiplier scale. With regard to the number of FTEs created, the longer occupancy period users generated the greater number of direct and induced FTEs with the shorter occupancy period users only producing the greater number of indirect FTEs. However, taking the indirect FTEs as a proportion of the sum of the direct and indirect FTEs, the figures are very similar, which accounts for the similarity in the employment multipliers. For the shorter occupancy period users, the indirect FTEs as a proportion of the sum of the direct and indirect FTEs were 1.3% - 1.5% for the two boundaries. The figures for the longer occupancy period users were smaller but not by much: 0.5% – 0.6% for the 30 minute drivetime area and 0.7% – 0.8% for the county. These proportions then explain the similarity of the employment multipliers for the two occupancy periods.

30 minute drivetime area					
Length of occupancy	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
< 5 years	11	1.39 – 1.68	1.11 – 1.12[15]	1.60 – 2.14	93.01 – 103.60
> 5 years	9	1.41 – 1.58	1.11 – 1.11	1.01 – 1.25	121.32 – 134.95
County					
Length of occupancy	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
< 5 years	11	1.42 – 1.78	1.11 – 1.12	1.63 – 2.27	93.01 – 103.60
> 5 years	9	1.52 – 1.76	1.11 – 1.11	1.09 – 1.40	121.54 – 135.24

Table 6.9: Building re-use income and employment multipliers according to the building users' length of occupancy of the buildings

6.2.5 SIC class

The SIC class of the building re-use can be said to be one of the most important building re-use characteristics, as the type of activity taking place in the building very much determines the input and labour requirements, which in turn give rise to the income and employment effects. Table 6.10 presents the income and employment multipliers for the three SIC classes. With regard to the income multipliers, the A&FS class clearly has the stronger income multipliers at county level. However, for the 30 minute drivetime area the A&FS and manufacturing classes have the same lower income multiplier. Therefore, attention must turn to the maximum income effect, which shows that the A&FS class has the strongest income multiplier for the 30 minute drivetime area. In the models, the National Trust and tenant expenditure for the manufacturing class was the highest average proportion of expenditure in the 30 minute drivetime area, but the A&FS class had the highest average proportion for the county. For the contractor and supplier expenditure, it is the 'other' class which had the highest average proportion of expenditure in both the 30 minute drivetime area and the county. However, the A&FS class had the higher induced effects (householder expenditure) for both the 30 minute drivetime area and county. The householder expenditure appears to be the main factor in the A&FS class

[15] The sensitivity analysis showed little variation in the employment multipliers for the 30 minute drivetime area and county.

having the highest income multipliers for both boundaries, as the householder expenditure for this SIC class is significantly larger than for the other two classes.

For the employment effects, it is the manufacturing class which has the greater multipliers and for all three classes the magnitude of the employment multipliers varies by a lesser margin than for the income multipliers. The ‘other’ class creates the most FTEs, but this is due to it creating 11.2% and 73.5% more direct FTEs than the A&FS and manufacturing classes respectively. The manufacturing class has the greater employment multiplier because the number of indirect FTEs it created is a greater proportion of the sum of the direct and indirect FTEs than for the other two SIC classes. For the 30 minute drivetime area, the proportional figure for the manufacturing class was 5.9% – 7.0%, whereas it was 0.6% – 0.7% for the A&FS class and 0.2% – 0.3% for the ‘other’ class. The figures for the county were almost the same, which is why there are no differences between the 30 minute drivetime and county employment multipliers for each of the SIC classes.

30 minute drivetime area					
SIC class	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Accommodation & food services (A&FS)	6	1.49 – 2.09	1.11 – 1.11[16]	0.92 – 1.43	88.24 – 98.15
Manufacturing	7	1.49 – 1.69	1.17 – 1.18	1.03 – 1.30	27.84 – 31.19
Other	7	1.38 – 1.53	1.10 – 1.10	0.77 – 1.00	98.99 – 110.04
County					
SIC class	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
Accommodation & food services (A&FS)	6	1.75 – 2.82	1.11 – 1.11	1.08 – 1.93	88.57 – 98.58
Manufacturing	7	1.49 – 1.71	1.17 – 1.18	1.03 – 1.32	27.84 – 31.19
Other	7	1.41 – 1.63	1.10 – 1.10	0.79 – 1.01	98.99 – 110.05

[16] The sensitivity analysis showed little variation in the employment multipliers for the AF&S and ‘other’ SIC classes.

Table 6.10: Building re-use income and employment multipliers according to SIC class of the building re-use

6.2.6 Tenure

The difference in the income multipliers for the two building tenure types is much more evident at the county level than for the 30 minute drivetime area. As can be seen in Table 6.11, the 30 minute drivetime area income multipliers for the two tenure types differ by only 0.01 at the upper end of the multiplier range. It is still significant though and so the re-use of the let buildings has the greater income multiplier for the 30 minute drivetime area. Drilling down into the models shows that the re-use of the let buildings generated a greater total indirect effect, but the re-use of the in-hand buildings produced the greater induced effect. The difference between the total indirect effects for the two tenure types was almost the same as the difference between the induced effects for them and this would appear to be the reason for the small difference in the income multipliers. At the county level, the total indirect effect for the re-use of the in-hand buildings was the same as that for the re-use of the let buildings and it is the induced effects which account for the difference in county income multipliers. The induced effect from the re-use of the in-hand buildings is 42.9% greater than the induced effect from the re-use of the let buildings, which results in the higher county income multiplier for the re-use of the in-hand buildings.

30 minute drivetime area					
Tenure	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
In-hand	10	1.45 – 1.66	1.10 – 1.10[17]	0.86 – 1.09	131.99 – 146.70
Let	10	1.45 – 1.67	1.14 – 1.15	1.85 – 2.35	83.56 – 93.50
County					
Tenure	**n**	**Income multiplier**	**Employment multiplier**	**Total income generated (£m)**	**Total jobs created (FTEs)**
In-hand	10	1.57 – 1.89	1.10 – 1.10	0.93 – 1.25	132.17 – 146.94
Let	10	1.47 – 1.71	1.14 – 1.15	1.86 – 2.42	83.56 – 93.50

Table 6.11: Building re-use income and employment multipliers according to tenure of the building

The employment multipliers for the two tenure types are affected by a much lesser margin than the income multipliers. We see from Table 6.11, that the re-use of the let buildings generated higher employment multipliers than the re-use of the in-hand buildings in both the 30 minute drivetime area and county. However, the re-use of the in-hand buildings created more FTEs in both areas because there are 46.4 – 51.5 more direct FTEs created through the re-use of the in-hand buildings. The re-use of the let buildings generated higher employment multipliers because the number of indirect FTEs created was a greater proportion of the sum of the direct and indirect FTEs created. The figures were 3.3% – 4.0% for both the 30 minute drivetime area and county, whereas for the re-use of the in-hand buildings the figures were around 0.2% and 0.3% – 0.4% for the 30 minute drivetime area and county respectively. The indirect and induced employment effects are driven to a greater degree by the spatial patterns of expenditure and income containment at the second, third and subsequent rounds of expenditure. The re-use of the let buildings generated higher employment multipliers because a greater proportion of the direct income was retained in the local area through the second, third and subsequent rounds of expenditure.

6.3 Summary of results

Table 6.12 presents a summary of the findings for the conversion works. Converting the animal housing buildings had the strongest income effect for the 30 minute drivetime area

[17] The sensitivity analysis showed little variation in the employment multipliers for the in-hand buildings.

with an income multiplier of 1.75 – 2.34. Next strongest was the conversions for the manufacturing sector, with an income multiplier of 1.59 – 2.11. The range and lower end of the income multiplier from converting the let buildings, 1.05 – 1.60, made this the weakest income multiplier for the 30 minute drivetime area. With regard to the 30 minute drivetime area employment multipliers, the strongest multiplier was generated by the conversion of listed buildings. The conversion of let buildings had the lowest employment multiplier, of around 1.12.

For the County boundary, the overall results only differ with regard to the income multiplier for the buildings' tenure. The result for the 30 minute drivetime area is reversed, meaning that the greater income multiplier for the county was generated by converting the in-hand buildings, rather than by converting the let buildings. Again, from this list it is the conversion of animal housing buildings which had the strongest income multiplier (1.82 – 2.63) and even though the building tenure with the higher multiplier has changed, it is still the characteristic with the weakest county income multiplier.

Characteristic	**Higher income multipliers (30 minute drivetime area)**	**Higher income multipliers (County)**	**Higher employment multipliers (30 minute drivetime area)**	**Higher employment multipliers (County)**
Building type	Animal housing (1.75 – 2.34)	Animal housing (1.82 – 2.63)	'Other' (1.75 – 2.06)	'Other' (2.03 – 2.46)
Building size (floor area)	< 464m^2 (1.45 – 1.69)	< 464m^2 (1.56 – 2.04)	< 464m^2 (1.60 – 1.82)	< 464m2 (1.65 – 1.88)
Designation	Listed (1.38 – 1.55)	Listed (1.47 – 1.76)	Listed (1.98 – 2.39)	Listed (2.21 – 2.73)
SIC class (when converted)	Manufacturing (1.59 – 2.11)	Manufacturing (1.64 – 2.45)	'Other' (1.15 – 1.16)	'Other' (1.15 – 1.16)
Tenure	Let (1.05 – 1.60)	In-hand (1.45 – 1.68)	In-hand (1.79 – 2.10)	In-hand (2.20 – 2.69)

Table 6.12: Conversion works building characteristics with higher income and employment multipliers for the 30 minute drivetime area and county

The building re-use characteristics displaying the higher multipliers are presented in Tables 6.13. With regards to the 30 minute drivetime area, it can be seen that the characteristics which generated the higher income multipliers were not always the same ones that generated the higher employment multipliers. This was the case for building type, indigeneity and SIC class. Another point to note is the greater variation in the income multipliers compared to the variation in the employment multipliers. The highest income multiplier in Table 6.14 is 1.74 – 2.49, which is for the re-use of animal housing buildings. The lowest income multiplier is 1.39 – 1.68, which is for the occupancy length of less than 5 years. The difference at both ends of the range is considerable when compared to the highest and lowest employment multipliers. The re-use of converted buildings for manufacturing generated the highest employment multiplier for the 30 minute drivetime area, which is 1.17 – 1.18. This multiplier is much closer to the lowest employment multiplier in Table 6.14 which is 1.11 – 1.12 for the local users and the users with an occupancy length less than 5 years. The income effect for the 30 minute drivetime area was therefore more variable than the employment effect. Also, the income multipliers were greater overall when compared to the employment multipliers. The lowest income multiplier (1.39 – 1.68) was 15.8 – 29.8% greater than the highest employment multiplier (1.17 – 1.18).

Characteristic	Higher income multipliers (30 minute drivetime area)	Higher income multipliers (County)	Higher employment multipliers (30 minute drivetime area)	Higher employment multipliers (County)
Building type	Animal housing (1.74 – 2.49)	Animal housing (1.79 – 2.91)	Crop storage and processing (1.14 – 1.15)	Crop storage and processing (1.14 – 1.15)
Business size (turnover)	> £75,000 (1.64 – 2.20)	> £75,000 (1.67 – 2.45)	> £75,000 (1.13 – 1.14)	> £75,000 (1.13 – 1.14)
Indigeneity	Non-local (1.47 – 1.67)	Non-local (1.52 – 1.78)	Local (1.11 – 1.12)	Local (around 1.12)
Length of occupancy	< 5 years (1.39 – 1.68)	< 5 years (1.42 – 1.78)	< 5 years (1.11 – 1.12)	< 5 years (1.11 – 1.12)
SIC class	Accommodation and food services (1.49 – 2.09)	Accommodation and food services (1.75 – 2.82)	Manufacturing (1.17 – 1.18)	Manufacturing (1.17 – 1.18)
Tenure	Let (1.45 – 1.67)	In-hand (1.57 – 1.89)	Let (1.14 – 1.15)	Let (1.14 – 1.15)

Table 6.13: Building re-use characteristics associated with higher income and employment multipliers in the 30 minute drivetime area and county

At the county level, it is a similar picture to the 30 minute drivetime area with regards to the characteristics associated with the higher income and employment multipliers. The only difference is that the re-use of in-hand buildings generated a higher income multiplier than the re-use of let buildings. The rest of the characteristics for the county are the same as those for the 30 minute drivetime area. The employment multipliers are also the same, but the income multipliers for the county are larger. As explained in chapter two, the size of the local boundary affects the size of the multipliers and an increase in the size of the boundary inevitably increases the size of the multipliers. The income multipliers for the county are larger than those for the 30 minute drivetime area, reinforcing the fact that the boundary increase brings more of the building re-use expenditure within the scope of 'local'. The greatest increase in income multipliers between the 30 minute drivetime area and county was 17.4% – 34.9%, which is for the A&FS SIC class characteristic. The smallest increase for the income multipliers was seen for the business size characteristic. The county income multiplier for building users with a turnover greater than £75,000 was only 1.8% – 11.4% greater than the 30 minute drivetime area multiplier. However, the employment multipliers in both tables were virtually the same, indicating that the boundary increase has not led to an increase in the local employment effect. This simply means that no new FTE jobs were created in the area between the two boundaries. In other words, the employment effect within the county boundary is just the employment effect within the 30 minute drivetime area. The employment multipliers themselves were low (a little over 1.0), suggesting that firms within the county boundary, like those within the 30 minute drivetime area, were generally able to meet any increase in demand for their goods and services without much of an increase in staffing levels. Overall, the characteristics with the higher income and employment multipliers at the county level were almost the same characteristics that have the higher multipliers for the 30 minute drivetime area. This consistency is encouraging for the validity of the results.

Examining the conversion works and building re-use results together, it is observed that four characteristics had the higher income and employment multipliers for both boundaries. For the conversion works, it was the listed buildings and the buildings with a floor area less than $464m^2$. For the re-use of the buildings, it was the businesses with a turnover greater than £75,000 and the businesses that had occupied the buildings for less than 5 years. With regards to overall economic impact, the re-use of the buildings generally produced higher income multipliers than the conversion works but the conversion works employment multipliers were generally higher than those for building re-use. Although the conversion works and building re-use are separate processes, there is some merit in examining the multipliers from both processes together to see that both processes are necessary to ensure a greater overall economic impact compared to either process on its own.

6.4 Development of the toolkit

The results of the LM3 analysis were initially presented to the National Trust at a meeting with Rory Cullen, Head of Buildings, at the National Trust's headquarters in November 2012. Rory was very interested in the results and in particular he was surprised that the non-local building users generated higher income multipliers than the building users who were from the local area. A discussion then took place regarding the most useful way to implement the findings into the National Trust's adaptive re-use work. When the research was being planned with the National Trust, one of the suggested outcomes was a database program that could be used to predict the income and employment multipliers of

National Trust adaptive re-use projects. However, due to the sampling method and volume of data collected it was decided that this outcome was not feasible. An alternative suggestion was a set of principles/guidelines on the local economic impacts on adaptive re-use projects to add to the National Trust's existing guidance on adaptive re-use. Rory agreed that this would be a useful outcome and he emphasised that the guidance should focus on how the re-use value of the buildings is significant in terms of local income and employment generation. He also stressed that the guidance should be written in 'layman's terms' for ease of understanding by non-experts in the economic theory of income and employment multipliers.

It was agreed that the research findings should be presented to and discussed with other senior staff at the National Trust. This took place at the National Trust's headquarters in April 2013. Rory Cullen was again present, along with Guy Salkeld (Research Surveyor), James Lloyd (Senior External Affairs Officer) and Ingrid Chesher (Building and Project Design Guide Manager). The meeting began with a presentation on the research and its findings and the slides can be seen in Appendix 15. A discussion then took place with the National Trust staff regarding the findings and local economic impact assessment in general. It became apparent that the National Trust's interest in and enthusiasm for local economic impact assessments had grown since the research began. Although the National Trust staff were very interested in the research findings on the local economic impact of adaptive re-use projects, the discussion quickly moved on to the wider applications of the LM3 methodology that was employed in the research. The National Trust were keen to know whether the methodology could be applied at both the micro (individual projects) and macro (national expenditure) level. They were also interested to know whether the local economic impact of past expenditure on other projects could be assessed. In particular, three applications of local economic impact assessment were highlighted by the National Trust: rural regeneration, the retrofitting of traditional buildings with energy efficiency technology and supporting Community Right to Buy projects. These areas of application will be discussed further in chapter seven. The outcome with regard to the adaptive re-use toolkit development was that the National Trust staff agreed that it would be extremely useful to have a guidance document to add to their existing adaptive re-use guidance. Following this meeting a draft structure was drawn up for the guidance note and it was sent to the National Trust for feedback. The structure can be seen in Appendix 16.

6.5 Conclusion

This chapter examined the local economic impacts of the conversion and re-use of traditional rural working buildings. The results of the LM3 analysis were presented and explained and the characteristics associated with higher income and employment multipliers were identified for both the conversion works and the re-use of the buildings. The development of the toolkit was then discussed. A full discussion of the LM3 results and an assessment of their implications for rural development policy, including their use by the National Trust, are contained in the following chapter.

CHAPTER 7

DISCUSSION AND CONCLUSIONS

7.0 Introduction

The purpose of this chapter is to fulfil the aims of the study: to examine the local economic impacts of traditional rural working building conversion and re-use projects and to advise the collaborating organisation, the National Trust, on the potential role that these projects can play in facilitating local rural economic development. The chapter begins with an in-depth discussion of the key findings in relation to existing literature and it assesses the implications of the findings for local economic development policy and heritage values. The chapter then moves on to discuss the use of the findings by the National Trust, the limitations of the study, and the areas of further work that could be undertaken. Finally, the headline conclusions are drawn, both in terms of the substantive findings and the contribution to methodological development in this field.

7.1 The local economic impacts of the conversion and re-use of traditional rural working buildings

The main purpose of this section is to discuss the key findings in relation to the existing literature. The discussion will include the 'overall' income and employment multipliers for both the conversion works and building re-use. The conversion works overall multipliers were modelled using the total initial expenditure and the mean proportions of local spending and re-spending of all the conversion projects. Similarly, the building re-use overall multipliers were modelled using the total turnover and the mean proportions of local spending and re-spending for all the building users. The overall employment multipliers for both the conversion works and building re-use were modelled using the total employment figures for all the conversion works and building uses. The overall multipliers are more useful for comparison with other studies than the building characteristic multipliers as the chosen characteristics seldom feature in previous local economic impact studies. The discussion will begin with the conversion works.

7.1.1 Conversion works

For the conversion works, the overall income multiplier ranges are 1.29 – 1.48 and 1.41 – 1.83 for the 30 minute drivetime area and county respectively. The overall employment multiplier ranges are 1.57 – 1.67 for the 30 minute drivetime area and 1.71 – 1.84 for the county. It is interesting to examine how the multipliers, according to the various building characteristics, compare with these overall multipliers. Beginning with building type, it is apparent that most of the income and employment multiplier range parameters for the various building types are greater than the overall conversion works multiplier range parameters. In fact, only the 'other' building type income multiplier parameters lie within the overall multiplier range. With regard to the employment multipliers, only the multiplier range parameters for the crop storage and processing (CS&P) lies within the overall employment multiplier range.

The income multiplier range parameters for the larger building conversion works are less than the overall conversion works multiplier range parameters. However, while the income multiplier range for the works on the smaller buildings incorporate the lower end of the overall conversion works income multiplier range, the upper end for the works on the smaller buildings is greater than the overall conversion works income multiplier upper end. The employment multiplier range parameters for the conversion of the smaller buildings are relatively similar to the overall employment multiplier range parameters but there is a greater difference between the employment multipliers for the larger buildings and the overall conversion works employment multipliers. For the 30 minute drivetime area, the employment multiplier range parameters for the conversion of the larger buildings are below the overall conversion works multiplier range parameters. At county level, only the upper end of the employment multiplier range for the conversion of the larger buildings is within the overall conversion works employment multiplier range parameters.

Moving on to the multipliers according to the buildings' designation, it is seen that the income multiplier parameters for the conversion of listed and unlisted buildings are almost the same parameters as the overall conversion works income multipliers. In particular, the county income multiplier range for the conversion of unlisted buildings, 1.43 – 1.68, is almost the same as the overall conversion works county income multiplier range of 1.41 – 1.67. However, the picture is not the same for the employment multipliers. At both the 30 minute drivetime area and county level, the employment multiplier range parameters for the listed buildings are greater than the overall employment multiplier parameters, whereas the employment multiplier parameters for the unlisted buildings are below the overall employment multiplier parameters.

Looking at the income multipliers according to SIC class, it is the multiplier parameters for the manufacturing class which differ most from the overall conversion works income multiplier parameters. The income multiplier parameters for the manufacturing class are greater than the overall income multiplier parameters whereas the income multipliers for the other two SIC classes are broadly in line with the overall conversion works multiplier parameters. However, in the case of the SIC class employment multiplier ranges the parameters for the 'other' SIC class are above the overall employment multiplier parameters, whereas the parameters for the other two SIC classes are below the overall parameters.

The final characteristic for comparison is building tenure. For the 30 minute drivetime area, the income multiplier parameters for the in-hand buildings are within the parameters of the overall conversion works income multiplier range, whereas the upper and lower parameters for the let buildings are greater and smaller respectively, than the overall income multiplier parameters. At the county level, the income multiplier parameters for the in-hand buildings are almost the same as the county level overall conversion works parameters, whereas again the income multiplier parameters for the let buildings differ from the overall income multiplier parameters. In this instance, although the lower end of the income multiplier range for the let buildings is below the lower parameter of the overall conversion works income multiplier range, the upper end of the income multiplier range for the let buildings lies within the overall conversion works income multiplier range. Turning to the employment multipliers according to building tenure, it is evident that the employment multiplier parameters for the let buildings are smaller than the overall conversion works employment multiplier parameters for both the 30 minute drivetime area and county. For the in-hand buildings, only the lower end of the 30 minute drivetime area employment multiplier range lies within the overall conversion works employment multiplier range and the upper parameter for the let buildings is greater than that for the overall conversion works. At the county level, the employment multiplier parameters for the in-hand buildings are greater than the overall conversion works employment multiplier parameters and the employment multiplier parameters for the let buildings are smaller than the overall conversion works employment multiplier parameters.

Having compared the overall conversion works income and employment multipliers to those according to the buildings' characteristics, attention will now be given to a comparison of the conversion works income and employment multipliers with previous studies.

Two of the most relevant studies for comparison are those by Edwards *et al.* (2005) and Courtney *et al.* (2007a). Both of these studies conducted an LM3 multiplier analysis of historic farm building conversion works but it is noted that the comparison is limited, firstly because these studies did not employ drivetime or county boundaries in defining the local economy. It is also noted that the conversion works projects in the present research included larger buildings and more substantial works than these previous studies. Edwards *et al.* (2005) found the Lake District ESA building renovation scheme's minimum direct injection into local economy to be £3.41 million, which in turn generated £8.5 million to £13.1 million for the local economy. This gave a minimum income multiplier for the scheme of 2.49. For the present research, the overall conversion works minimum direct injection for the 30 minute drivetime area is £19.3 million, which generated £27.8 million to £35.7 million for the 30 minute drivetime area and £30.2 million to £43.7 million for the county. Despite these larger figures, the income multiplier ranges for the 30 minute drivetime area and county are 1.29 – 1.50 and 1.41 – 1.67 respectively. The Lake District ESA scheme created 25 - 30 FTE jobs and had a minimum employment multiplier of 1.71. This is more FTE jobs than were created by the building conversion works in the present research but the Lake District ESA employment multiplier is within the employment multiplier ranges of the 30 minute drivetime area and county.

Courtney *et al.* (2007a) found that the Yorkshire Dales National Park (YDNP) building schemes generated £4.27 million - £4.74 million for the YDNP area with an income multiplier of 1.65. Although the amount generated for the local economy is smaller than for the present research, the income multiplier is greater than the overall multiplier parameters for the 30 minute drivetime area and it is just below the upper parameter for the county. However, the parameters of the employment multipliers in the present research are greater than those for the YDNP conversion works. The YDNP employment multiplier parameters are 1.25 – 1.56 whereas the employment multiplier parameters for the 30 minute drivetime area and county are 1.57 – 1.83 and 1.71 – 1.84. Although the local economic impact of the conversion works in the present research is not as strong as the impacts in the previous studies, it can still be said that the conversion works had a positive local economic impact.

Comparing the multipliers from the present research to that of Edwards *et al.* (2005) and Courtney *et al.* (2007a) suggests that traditional rural building conversion works are more likely to generate higher income and employment multipliers when the works consist of relatively straightforward repairs to walls and roofs on smaller buildings to allow them to remain in agricultural use. For example, the average floor area of the buildings in Courtney *et al*. (2007a) was 95.7m^2 and the majority of the buildings remained in agricultural use. The average floor area in the present research is 725.2m^2 and the conversions were all for a change of use, which required more substantial works to take place.

Another point to note is that the present research identified that the contractors involved in the conversion works were able to absorb the demands of the work and this was also found by Courtney *et al.* (2007a). The contractor firms in the present research reported a minimal impact from traditional rural building work on their turnover and only one of the firms had recruited new staff because of traditional rural building work.

The present research also supports some other findings by Edwards *et al*. (2005) and Courtney *et al*. (2007a) regarding contractors. The contractors working on traditional farm building restoration were usually locally based, as demonstrated by the average proportion of works expenditure within the local area being 59.5%. Furthermore, the average proportions of expenditure within the local area on converting farm buildings specifically were 63.3% and 75.4% for the conversion of animal housing and crop storage and processing buildings respectively.

With regard to contractor employment, the present research supports the finding that contractors working on farm building restoration predominantly employ locals. However, a finding that is less well supported by the present research is that contractors working on farm building restoration have a high proportion of expenditure within the local economy. This kind of work represented a relatively small proportion of expenditure in general for the contractors in the present study but of the expenditure that they did make, almost half (45.0%) occurred within the 30 minute drivetime area and the majority occurred within the county.

The present research also supports Edwards *et al.* (2005) and Courtney *et al*. (2007a) on the importance of grants in preserving traditional rural buildings. In the present research, less than one fifth of the works expenditure would have occurred had there been no grant funding. It was also found that the grant funding typically only covered 29.0% of the total conversion works expenditure. Furthermore, in some cases the conversion works can be credited with ensuring the survival of a building and this is an important point to note. 18 participants were able to say whether their building would have been maintained had it not been converted. 10 of these 18 participants stated that their building would not have been maintained at all in the absence of any conversion works and so it can be said that the conversion works helped to ensure the survival of some of the buildings. The buildings that were saved due to the grant-aided conversion works were mostly smaller than 464m^2 and were converted for accommodation and food services use. Half of them were listed, half of them were let and the majority were either animal housing or crop storage and processing building types. The National Trust cannot always afford to carry out building conversion works without the support of grants and so the grants are vital in ensuring vulnerable buildings are preserved. The same may be true for other rural landowners who own traditional buildings that are in need of repair. The grants are also important as they increase the overall expenditure on the works which means greater income for contractors and suppliers, local or otherwise.

Previous local economic impact studies regarding capital works projects, such as those by Harrison-Mayfield *et al.* (1998), Mills (2002) and Courtney *et al.* (2013), were found to have a positive local economic impact and the present research adds to this finding. The National Trust can play an important role in facilitating the restoration and re-use of traditional rural buildings which can in turn support the local economy in a similar manner to the agri-environment schemes in the aforementioned previous studies.

7.1.2 Building re-use

The overall income multipliers for the building re-use are 1.40 – 1.60 for the 30 minute drivetime area and 1.46 – 1.73 for the county. The overall employment multipliers are around 1.11 for both the 30 minute drivetime area and county. Looking at the building re-use income multipliers according to building type, only the income multipliers for the re-use of converted animal housing buildings, 1.74 – 2.49, differ greatly compared to the overall building re-use multipliers. With regard to the employment multipliers, there is little difference between the employment multipliers for each of the building types and the overall employment multipliers.

The general pattern for the building re-use multipliers according to user turnover is that the income multipliers for the smaller businesses (turnover less than £75,000) are less than the overall building re-use multipliers and the income multipliers for the larger businesses are greater than the overall building re-use income multipliers. However, again there is little difference between the employment multipliers according to the characteristic and the overall building re-use employment multipliers.

A comparison between the overall building re-use multipliers and the re-use multipliers according to user indigeneity is interesting as both the income and employment multipliers are relatively similar. The same is true of the building use multipliers according to length of building occupancy. However, for the building re-use multipliers according to SIC classes there are some differences compared to the overall building re-use multipliers. The greatest difference is observed for the accommodation and food services (A&FS) re-use income multipliers. For the 30 minute drivetime area, the lower parameter of the income multiplier range, 1.49 – 2.09, is within the overall building re-use multiplier range but the upper parameter is well above the overall upper parameter. At the county level, the A&FS income multiplier parameters are greater than the overall building re-use income multiplier parameters. The income multiplier ranges for the other two SIC classes are more in line with the overall building re-use income multipliers. The employment multipliers for the various SIC classes are also in-keeping with the overall building re-use multipliers. The building re-use overall multipliers are also relatively similar to the building re-use multipliers according to building tenure with the exception of the county income multiplier range for in-hand buildings. The upper parameter of this range is 16 points above the upper parameter of the overall re-use income multiplier range. The re-use employment multipliers according to building tenure are similar to the overall re-use employment multipliers.

Turning now to a comparison with previous studies, the literature review identified some relevant points for discussion in light of the present research findings. 6 of the 9 buildings classified as being in use for manufacturing are used for the production of food or alcoholic drinks. Roberts (1998) argues that food processing and alcoholic drink production create a more strongly integrated rural economy, but the present research gives a mixed picture. The manufacturing SIC class has the second strongest income multipliers among the SIC classifications but it has the strongest local employment multipliers.

The SIC class with the strongest income multipliers is the A&FS class and these businesses cater for tourists among others. Slee *et al.* (1997), albeit with different boundaries for the local economy compared to the present research, found that rural tourism enterprises generated income multipliers of 1.10 and 1.15 for soft and hard tourism accommodation respectively in the 'core area' and 1.52 and 1.47 for soft and hard tourism respectively for the 'core' and 'extended' area together. The building uses in the A&FS SIC class would fall under the soft tourism category and the income multipliers compare favourably. The income multiplier for the 30 minute drivetime area is 1.49 – 2.09 and the equivalent for the county is 1.75 – 2.82. This supports the view that re-using traditional farm buildings for tourist services could be a positive economic impact on the local economy, assuming that there is a market for tourism accommodation in the area.

The relative strength of local economic linkages according to firms' characteristics was explored by Courtney *et al.* (2006) in the context of natural heritage. The characteristics associated with strong upstream linkages included small firms and primary producers. Weaker upstream integration was found for large firms and manufacturing firms among others. Firm size is defined in the present research by turnover and it was observed that the larger firms have the stronger upstream local economic linkages. Manufacturing was found to have stronger local economic linkages than all bar one SIC class, but primary production does not feature in the 'other' SIC class, as the buildings were converted due to being redundant for modern primary production uses.

The literature review also raised the question of whether re-using traditional rural buildings for diversification purposes gives rise to a greater impact on the local economy than re-using them for agricultural purposes. Comparing the present findings to those of Lobley *et al*. (2009a) is helpful for examining how the local economic impact of the building uses in the present research compares to that of organic agriculture. On aggregate, organic farms were found to have income multipliers ranging from 1.66 to 1.97 and employment multipliers between 1.28 and 1.35 for the 30 minute drivetime area. These are greater than the overall building re-use income and employment multipliers for the 30 minute drivetime area which suggests that, in general, organic agriculture has a stronger economic impact on the 30 minute drivetime area. The organic agriculture income and employment multipliers are also greater than the manufacturing and 'other' SIC class income and employment multipliers, although the upper parameter of the A&FS income multiplier range, 1.49 – 2.09, is greater than the equivalent for organic agriculture. The use of the converted buildings for farm diversification in the present research has a smaller local economic impact than organic agriculture and so perhaps using the converted buildings to support an organic agriculture enterprise is better for the local economy than the alternative uses that were analysed in the present research.

7.2 Implications of the research for rural economic development

When considering the implications of the findings for rural economic development, it is important to distinguish between the effects of the conversion works and the effects of the re-use of the converted buildings. The conversion works are a one-off capital works project that run for a certain period of time and so they only have a local economic impact for that period. However, the importance to the local economy should not be downplayed. The conversion works do have a positive local economic impact and the effects will continue as long as the necessary financial support is available. The findings suggest that building conversion projects often require grant funding, without which the works will either not take place or will be carried out to a lesser extent. The grant application usually requires an estimation of the project's economic and social effects and so the identification of these effects is important for justifying the awarding of grants. The grants then support the conversion works project and the effects are realised.

The re-use of the converted building is an on-going activity and so the local economic effects will continue for as long as the building is in use. There will of course be variations in the level of business expenditure and in the number of staff hired over time but the activity should remain continuous. However, it should be noted that the LM3 analysis underestimates the impact of the re-use because the analysis is based on a single financial year. The effects beyond that time are not captured within the parameters of the study. It is therefore possible that a greater impact could occur when a business upsizes and the building receives a new occupier. The findings of other local economic impact studies are therefore helpful for indicating additional impacts beyond that measured here. For example, Courtney and Errington (2000) identified a 'development mix' of the types of businesses that have stronger upstream and downstream economic linkages and only some of these business types currently occupy the buildings in the present study. There is also the study by Courtney *et al.* (2006) which again shows the business characteristics associated with strong and weak local economic integration, this time in the context of natural heritage activities. It is possible then to indicate the additional instrumental value that could arise beyond the time period covered by the present study, as other studies show the impact that different occupiers may have.

Given that the re-use impacts are ongoing, it is good that the overall income multipliers for re-use are greater than those for the conversion works, although the overall building re-use employment multipliers are considerably smaller than those for the conversion works. The re-use of the buildings is particularly important from a rural economic development perspective, as the re-use is really what gives rise to the expenditure and employment. The two most common SIC classes in the present research were A&FS and Manufacturing. The A&FS uses in particular had strong local income multipliers. However, the potential uses for converted traditional buildings are not confined to those identified in the present research and other industries may be able to contribute to rural economic development through the use of converted traditional buildings.

It is also important from a rural economic development perspective to consider where the findings sit in relation to rural economic development theory. The conceptual model in Chapter 2 suggested that rural economic development was an instrumental value arising from the conversion and re-use of the buildings and that from this flowed local multiplier effects. However, the conceptual model has been revised in light of the research findings and the revised model is shown in Figure 7.1. The research findings show that the conversion and re-use of the buildings generated local economic multiplier effects and these are an instrumental value of the buildings as they contribute to rural economic development. The local economic multiplier effects occur because the conversion and re-use processes are examples of immobile resources and economic base theories. The buildings are resources that are fixed to their locality and the National Trust provides the networks to link these fixed resources beyond the local area. With regards to the building re-use, the National Trust's own supplier networks, plus its ability to provide a wider market for the products of its tenants, are the kind of relationships and networks that Bryden and Munro (2000) describe as necessary for facilitating rural economic development through immobile resources. Economic base theory is supported because external income (basic activity) comes from the National Trust's investment plus grants and this income is re-circulated locally through the use of local suppliers and local employees (non-basic activity). This is why the conversion and re-use processes gave rise to local economic multiplier effects. The effects were driven by the upstream transactions between local firms and the corresponding size and spatial distribution of income and employment multipliers.

The generation of local economic multiplier effects is an example of the mixed exogenous/endogenous (Terluin 2003) or neo-endogenous development (Lowe *et al.* 1998; Ray 2001) because they arise through a mix of external (economic base) and internal (immobile resources) forces. As Bosworth and Farrell (2011) describe, neo-endogenous development is about the local area shaping its own development with the aid of knowledge and opportunities from outside the local sphere of influence. The investment by the National Trust, including grant funding, is the primary external influence. Then there is the influence of the tenants who were not originally from the local area. They brought with them knowledge and relationships from where they were previously and some of these tenants fit Bosworth's (2010) description of commercial counterurbanisation. The local economic impact of in-migrants is demonstrated in the findings as the income multipliers for the non-local building users are greater than the income multipliers of the building users who are from the local area. It could even be said that the National Trust themselves fit the description of commercial in-migrants, as in the cases of their visitor accommodation, catering and retail enterprises they are an external entity which is engaging in economic activity in the local area and they bring their knowledge and business networks with them.

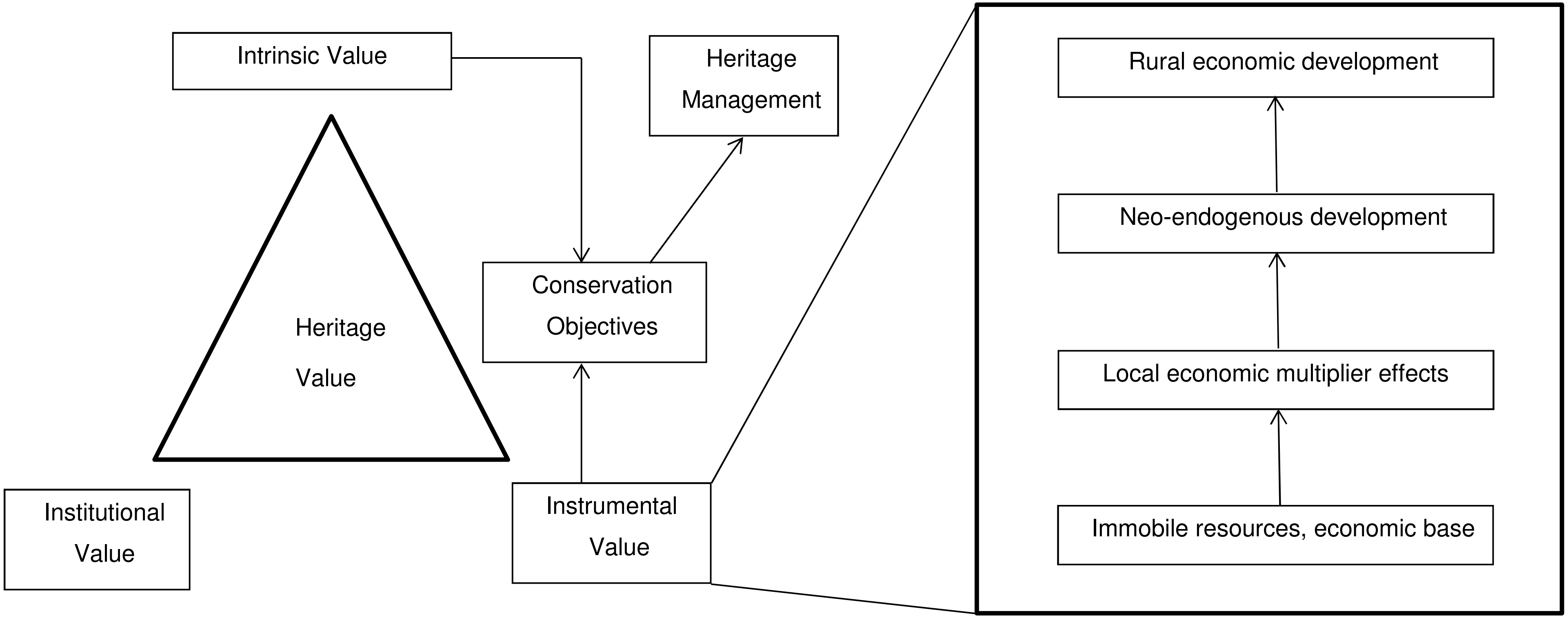

Figure 7.1: Revised conceptual model

The positive local economic impacts that have been shown to arise from the building conversion and re-use projects are an instrumental value as they contribute to something beyond the buildings themselves. The contribution is to rural economic development. The findings support the notion of local rural development in the continuing evolution of rural development policy from sectoral support for agriculture towards factors which support and encourage local economic growth, as described by Hodge and Midmore (2006) and presented in Figure 2.1 in Chapter 2. One of the National Trust's rural policy aims is to support rural development at the local level and the building conversion and re-use projects can be a factor in this.

In terms of spending circles (Ward and Lewis 2002), the data suggests that the majority of expenditure from the building conversion and re-use took place beyond the local boundaries as shown in Figure 7.2. For the conversion works, the overall mean proportion of expenditure within the 30 minute drivetime area was 15% - 18% and for the county the range was 18% - 21%. For building re-use, the overall mean proportions of expenditure within the 30 minute drivetime area and county were 16% - 19% and 20% - 24% respectively. Ward and Lewis' (2002) preferred situation is that local trade would be at the medium level with the majority of trade at the regional level and minimal trade beyond the regional level. However, it has already been noted that the local economic impacts of the building re-use process are possibly greater that what is seen in the findings. The LM3 models only used figures from one financial year but there is the potential for further local economic impacts if the business upsizes and the building then receives a new occupier. In spite of the time element not being considered, the re-use process does appear to contribute to local economic development. The local economic impact (income generation and employment) not only occurs directly, but also indirectly and it is induced. In some cases, although the direct effect was outside the local boundary the indirect and induced effects were within the local area. An example of this is the use of a main contractor from outside the local area and then the contractor using sub-contractors from within the local area. Furthermore, the findings relate to a specific local boundary. An alternative boundary would likely produce different results and this is discussed further in Section 7.6.

There is scope for National Trust building conversion and re-use projects to achieve greater local economic impact, particularly for building re-use. The specialist skills and materials that are sometimes required for the building conversion works may not always be available locally or even within the county, but the research participants suggested that the level of local sourcing for National Trust in-hand building uses could be improved. It was observed that although the National Trust catering and holiday accommodation enterprises were able to source a relatively large proportion of goods and services locally, the retail enterprises were often tied to national supply contracts and so much less of their purchases were within the local area. In the case of its tenants, the National Trust may wish to consider the potential local economic impact of tenant enterprises when assigning leases. The findings suggest that accommodation, food services and manufacturing enterprises will give a greater local economic impact compared to other industry types.

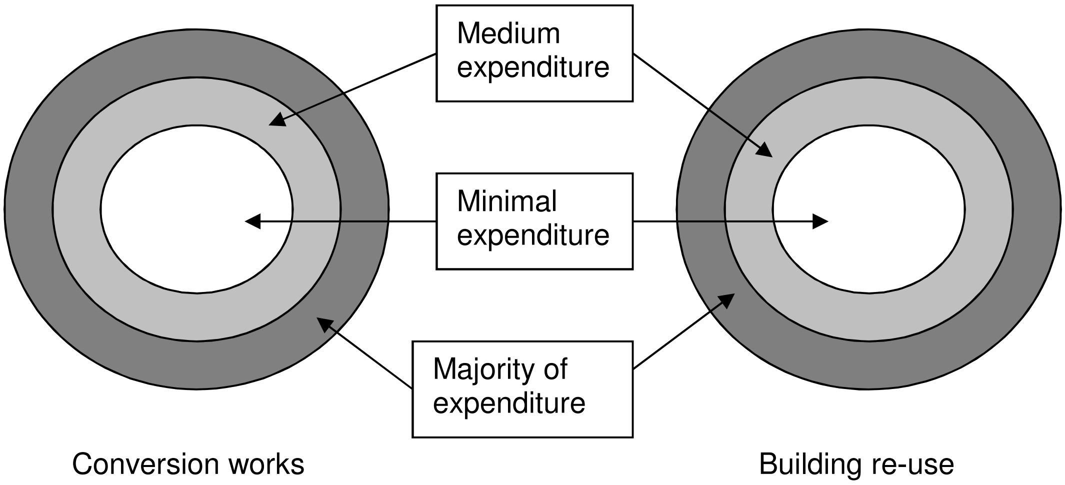

Figure 7.2: Spending circles

Source: Adapted from *Ward and Lewis (2002)*

The research findings also contribute to a better understanding of rural economic growth in light of the Coalition Government's rural growth agenda. The Government wishes to stimulate sustainable growth in the rural economy and it wants to support the development of rural businesses. The Government's strategy includes the development and support of rural business networks (referred to as Rural Growth Networks) and the easing of planning restrictions on the conversion of redundant agricultural buildings; the research findings are relevant to both of these strategic elements. Firstly, the findings demonstrate the role that local economic linkages can play in rural economic development and this is important if the development is to be sustainable. As previously discussed, local economies benefit most when externally generated income is able to re-circulate within the local area, rather than straightaway flowing out of the area. If strong local economic linkages can be encouraged to develop then the impact of any Government injection is more likely to be sustainable. With regards to the re-use of redundant agricultural buildings, the findings demonstrate the potential to facilitate local economic development through such conversions. The conversion and re-use of redundant animal housing and crop storage and processing barns in particular generated relatively strong local income multipliers and there is also the importance of the re-use itself to consider. The A&FS uses were found to have the strongest local multipliers but the main message is that it is important for the Government to consider which uses are more likely to benefit the local economy.

A further point regarding government policy is the link between the intrinsic and instrumental value of heritage assets. A reduction in funding for English Heritage suggests that conserving the intrinsic value of heritage assets is a lesser priority for the Government at a time when it is trying to manage a deficit. In contrast, The Rural Economic Growth Review (DEFRA 2011) is evidence that stimulating rural economic growth is a priority for the Government. The research findings show that traditional rural working buildings have instrumental value in that converting them for re-use can contribute to the stimulation of rural economic development. This should therefore encourage the Government to consider linking the conservation of intrinsic value with generating instrumental value. If the intrinsic value of heritage assets is no longer enough to justify investing in them then the instrumental value could add weight to the case for investment, especially if it links to current priorities. The expenditure on conversion and re-use may represent a more efficient use of society's scarce resources as there are multiple benefits heritage conservation and rural economic development.

7.3 Implications of the research findings for heritage values

The field of heritage conservation and management has evolved to the point at which heritage assets, such as historic buildings, are seen to have value beyond what is intrinsic to them. Holden (2006) identifies intrinsic value as one of three equally important elements of the Public Value of culture and heritage (Figure 1.1 on page 10). The present findings are useful for demonstrating the instrumental, or 'use value', of specific heritage assets, namely traditional rural working buildings, to the National Trust and other building owners. The instrumental values of the buildings lie in the ancillary effects of their conversion and re-use to achieve a social or economic purpose and the present research has sought to capture the local economic effects that can be measured spatially. The local economic multipliers arising from the conversion and re-use of the buildings show that the buildings have instrumental value, as their conversion and re-use has a positive impact on the local economy. In particular, examining the multipliers according to the buildings' designation began to explore the link between intrinsic and instrumental values. Taking designation as a proxy for intrinsic value, it was seen that the conversion works for the listed buildings generated greater income and employment multipliers than the conversion works for the unlisted buildings. In other words, converting the buildings with the greater historical / cultural significance (intrinsic value) gave rise to greater local economic impacts (instrumental value). This is an interesting finding and further research could explore the reasons for it. However, it is noted that this finding may be less significant that it appears due to the small sample size. Also, the sampling approach makes this finding, like all of the findings, difficult to generalise to the national level.

Despite the sampling issues, the case studies highlighted in Chapter Five show how the National Trust retained the elements that contribute to intrinsic value when converting the buildings for re-use. The National Trust's Conservation Principles (Appendix 1) show how the organisation operationalises heritage values to formalise its approach to practice. They take account of the multiple ways in which the historic environment is valued as part of cultural and natural heritage. When making decisions regarding change, it is important to understand who values a heritage asset and why, so that its significance is clearly stated and the impacts of the proposed change can be understood. Conservation organisations will seek to eliminate or minimise adverse impacts on significance but it is a balancing act. Attempts to generate instrumental value, such as conversion for re-use, will impact upon the intrinsic value because to derive the instrumental value, the heritage asset may require physical changes to be made to it. However, if the instrumental value includes a financial return, for example rental income, it can aid the retention of the intrinsic value through reviving a heritage asset that might otherwise be left to decline. Functionally redundant traditional rural working buildings, including those owned by the National Trust, require a solution to their dependency on conservation organisations. They are on a spectrum of significance and as noted by Darley (1981), they are not overly significant individually but collectively they have an overall effect on the rural landscape. However, there are too many to manage them as a single group and so the market has to find solutions. Some will be significant enough to qualify for funding from agri-environment schemes or from English Heritage, but an alternative income stream will be required for the rest. These are the circumstances in which change will have to take place to facilitate the generation of instrumental value and that change is likely to impact on what contributes to the significance of the building / gives it intrinsic value. The aim for heritage management is to balance any loss of intrinsic value with the gain from instrumental value.

Given that there are these multiple values of heritage, organisations that are responsible for heritage conservation and management need to recognise them all as opposed to being driven by any one particular value. With regards to the National Trust, although they lack a process for quantifying instrumental value, such as local economic impact, their heritage conservation and management practice recognises and accommodates multiple heritage values. As demonstrated by the case studies highlighted in Chapter Five, The National Trust has sought to manage the conservation of redundant traditional rural working buildings in a manner that makes the buildings more than just a pleasant reminder of rural working life in the past. As a conservation organisation, the National Trust makes it a priority to protect the features that contribute to the intrinsic value of the buildings (i.e. what makes the buildings significant), but they also recognise that there are multiple benefits (instrumental value) from re-using the buildings. The income generated from the re-use of the building can pay for maintenance and the National Trust's preference for converting traditional rural working buildings for business uses, rather than for residential use, exists because the National Trust believes that business uses are more likely to benefit the local economy in terms of income generation and job creation.

As discussed in Chapter One, the rhetoric of the Coalition Government's planning reform takes a positive view on converting and re-using heritage assets, such as traditional rural working buildings, to support rural economic development. The reforms also state the importance of protecting what gives heritage assets their significance (intrinsic value) when balancing heritage conservation with finding viable uses for heritage assets. This suggests that the current planning policy in England acknowledges that heritage assets have multiple values and that functionally redundant buildings can be given new lives through balancing heritage conservation with development. The research findings demonstrate that heritage conservation can support economic development and the National Trust's projects can be used as evidence of best practice beyond the organisation.

Demonstrating the multiple values of heritage assets may help the owners to obtain funding to secure the future of the assets. The research participants reported that securing funding to maintain their heritage assets can be problematic and they also reported that funding organisations are increasingly requiring applicants to quantify the wider benefits (instrumental value) of heritage projects. The present research has shown that by bringing redundant traditional buildings back into use, it not only positively impacts upon the local economy but also upon the buildings themselves. If the re-use of the asset is able to generate income then that will enable the asset to be maintained, when otherwise it may be in danger of being lost due to a lack of funding. 10 of the research participants stated that the building would not have been maintained in the absence of the conversion works. This implies that the conversion works helped to ensure the buildings' survival. With regards to the importance of grant funding, it was found that less than one fifth of the conversion works expenditure would have occurred had there been no grant funding. Although the grant funding typically only covered 29.0% of the total conversion works expenditure, in some cases grant funding accounted for a much greater proportion of the total expenditure. This demonstrates the importance of the availability of grant funding for traditional building works as the National Trust, and other owners cannot always afford to carry out these works without the support of grants. However, in order to obtain these grants it will be necessary to demonstrate the multiple values of the buildings. The research findings show that the buildings have instrumental value as converting them for re-use had a positive local economic impact which was spatially measured. The findings can sit alongside the various measures of historical and cultural significance (intrinsic value) when assessing the multiple values of the buildings.

7.4 The use of the findings by the National Trust

The present research was designed to have a practical output for the National Trust and the guidance note that has been developed will be useful to them in helping to consider how their traditional rural building conversion projects can positively impact the local economy. The National Trust have identified around 170 redundant farm buildings in their care and around 65 of these are considered to be potential income generators, based upon factors such as their size and location. The guidance note will enable the National Trust to consider the local economic impact alongside other factors when planning future building conversion projects. The case studies in chapter six highlight how the guidance note can be used in practice to identify the key characteristics of building conversion projects that are more likely to have a positive local economic impact.

As well as giving an indication of the potential local multipliers for various building characteristics, the guidance note also encourages the National Trust to generally consider what influences their local economic footprint. This is an extremely relevant area of application for the National Trust as their current operational strategy focuses on how they can further their engagement with and their support of the local communities who live and work on and next to National Trust land holdings. The National Trust were particularly interested in the LM3 as a method of local economic impact assessment and they are considering other applications for it. Firstly, the National Trust would like to measure the local economic impact of retrofitting traditional buildings with energy efficiency technology. The National Trust is beginning a programme to improve the energy efficiency of their 5,000 let properties and they are aiming to use local contractors and suppliers as much as possible. A second application of the LM3 that was identified by the National Trust is a comparison exercise to see how the local economic impact of converting and re-using existing buildings compares to the local economic impact of constructing new buildings. This is of interest to the National Trust because they will construct new buildings for things like visitor facilities if required. Also, the National Trust believes that a comparison of local economic impacts would complement a comparison of the environmental impacts with regard to converting an existing building versus constructing a new one. The other area of interest for the National Trust regarding LM3 is when they help to assess Community Right to Buy projects. The National Trust would be interested to know the local economic impacts of proposed community uses for a building when they are advising communities on implementing a Right to Buy purchase.

7.5 Methodological considerations

The main difficulty in the data collection and analysis was the data collection process, which in turn determined the quality and quantity of data obtained. The data collection process faced difficulty from the outset as the National Trust was undergoing organisational change at the time of the fieldwork. This meant that key staff members were distracted and it limited the number of people who could be spoken to, which meant access was unable to be gained to some properties. It also meant that some of the staff who were willing to help could not give as much time as they otherwise might have been able to. Furthermore, despite the research having the full support of central National Trust staff it was not always as fully appreciated by staff at the regional and property levels. In fact, data could only be collected from 29 National Trust owned buildings and finding a 30th building within the National Trust was proving difficult. Permission was therefore sought to approach building owners and users outside the National Trust. Just as a strategy for identifying persons to approach was being devised, one of the National Trust tenant participants mentioned that he rented a converted building from a farmer for another business and that he was willing to give information on this business.

When interviews were arranged, the complex nature of the survey instrument and the sensitive information being asked for did not make for an easy interview. Despite being given advanced notice, some participants were still unprepared for the interview. In these instances, either crudely estimated information was obtained or the participant asked if they could complete the survey at a later time and return it. Often the result of the latter was that the survey was never returned.

A particular issue for the tenants was that the research was supported by their landlord. The concern was that the National Trust could use the tenant's business information in rent reviews. The tenants who did participate remained suspicious of the purposes of the research but sufficient information was obtained from them.

Approaching and securing the co-operation of the contractors and suppliers was also challenging, again due to the sensitivity and complexity of the information required. It was necessary to reassure firms regarding confidentiality and it was also important to help them understand the purpose of the research, so that the effort required from the participants seemed worthwhile. It was generally the case that the firms who dealt directly with the National Trust were more willing to participate, as these firms usually had positive working relationships with the National Trust and they appreciated why the National Trust were interested in the research. The firms who supplied to the tenants and firms that were further down the supply chain were more likely to be dismissive of what the research was trying to achieve. They were therefore quicker to declare the research as too intrusive to participate in.

The participants' responses to the definition of 'local' were interesting and varied. It was generally accepted, but some participants still felt the need to explain what local meant to them. Some of the National Trust retail staff sought to emphasise how much they sourced from within their National Trust region and the National Trust catering staff were often very proud of their local food sourcing from their particular estate as well as within the 30 minute drivetime area. This is reflective of the National Trust's efforts on its local food policy.

It was unfortunate that more household expenditure surveys could not be completed. The primary issue was the 'gatekeeper' of the business not allowing access to their employees on the grounds of privacy and confidentiality. Whenever employees were met with it was then sometimes the case that they were too busy to complete the survey or that they found it too intrusive. In some cases, employees took the survey away to complete and then returned it but this did not happen often.

The complexity and sensitivity of gathering primary data for an LM3 exercise was always going to be challenging and the organisational changes at the National Trust and the tenants' perception of the research only added to the issues. The data took longer than expected to gather due to the issues already discussed and the process required much persistence and organisation.

With regard to the data analysis, the most challenging aspects were the accounting for additionality in the conversion works models and accounting for attribution effects in the building use models. Both of these elements were necessary to help ensure that the models were only analysing the local economic effects that could be said to be the result of the building conversions but each presented its own difficulties. Factoring additionality into the conversion works model relied on the participants' understanding of the survey questions regarding alternative courses of action and the quality of responses varied. The survey questions and interviewer explanations could be improved to help participants think about hypothetical alternative situations. Factoring in the attribution effect required researcher judgement based on the likelihood that the participants would have only used a converted traditional rural building. The Social Return on Investment (SROI) literature was helpful for guiding this estimation of a quantitative result using qualitative data. The attribution figures used are conservative estimates and so the actual effects could be greater.

A further limitation with the analysis is that the comparisons between the groups of case studies were not independent. It was necessary to place each case study in more than one characteristic grouping to give enough data for the LM3 models but the consequence is that the models are not independent. This may partially account for there not being a large difference between the conversion works and the re-use multipliers. A related limitation is that the data used in the models was the mean local expenditure from the various case studies. The sampling approach and subsequent sample size increase the risk of the mean figures being skewed by outliers which should be considered when interpreting the findings.

It is important to note that the LM3 modelling does not account for the effects beyond the period of time from which the data came. This is particularly relevant for the re-use process. The data that was collected related to one financial year but the re-use process is ongoing as long for as the building remains in use. Therefore, the LM3 modelling does not take account of effects such as a business upsizing and new occupiers coming into the building.

Despite the difficulties of making the LM3 analysis more realistic, it was still the most appropriate model to use as the alternatives would have presented greater challenges. An input-output (I-O) model was a possible alternative but the biggest challenge with this approach would have been in disaggregating national or regional data to a niche part of the economy at the sub-regional level. It would have been impossible to carry out primary data collection for all the data that an I-O model would have required, due to the quantity that would have had to have been collected. At least some disaggregation of existing I-O tables would therefore have been necessary, but this would have required the assumption that the national or regional level input mix was representative of a niche part of the sub-regional level economy.

Another alternative approach to the analysis would have been to use a Social Accounting Matrix (SAM) model. However, while a SAM would have provided a more realistic model of the economic activity taking place, the data requirements and the necessary assumptions did not make it a feasible option. Like I-O models, collecting primary data for a SAM would have been beyond the resources of the present research, due to the volume of data required. It would therefore have been necessary to disaggregate data from a national or regional level and again, as with the I-O models, an accurate disaggregation to a niche part of the economy at the sub-regional level would not have been possible.

7.6 Suggestions for further research

There are several ways in which the present work could be built upon to take this area of enquiry forward. Regression modelling could be carried out to ascertain whether the differences between the multipliers for the various building characteristics are actually due to the distinguishing characteristics. Also, a cluster analysis could help identify groups of characteristics. The present research did not have enough data to conduct these types of analyses and so a further data collection exercise would be required. This could be through conducting more in-depth case studies or through carrying out a larger scale survey. A regression analysis would be a useful development for the data to allow the forecasting of multipliers based on the characteristics of buildings being considered for conversion.

The findings raised the issue of when a drivetime area was near to a major urban centre and the impact of this on the expenditure pattern of building conversion and re-use projects. While the 30 minute drivetime area served its purpose in the research in providing a boundary of local applicable to different geographical locations, it still had its limitations. Further work could explore whether using a standard drivetime boundary to mark the local economy makes sense when the buildings are in the proximity of urban centres. This could help identify a more appropriate definition of local and it may uncover greater local economic impacts. The work of Copus *et al.* (2011) would be useful here as one of their three meta-narratives of contemporary rural change is rural-urban. Mitchell *et al.* (2005) and Courtney *et al.* (2008b) also state the importance of location in terms of rural and urban areas and so future research could explore the spatial expenditure pattern of conversion and re-use projects to see how they vary according to the location of the building.

As suggested by the National Trust, an LM3 analysis could be carried out for other building works. An LM3 analysis of the construction and use of new rural commercial buildings would give a useful comparison between the local economic impacts of converting existing buildings versus the construction of new ones. This information would also be of interest to other parties such as Local Planning Authorities and other heritage conservation organisations as decisions to construct a new building can be contentious, especially in locations where an existing redundant one could be re-used instead.

Moving more widely, the present research could be integrated into a blended value approach, as an economic impact component alongside the social and environmental components. With regard to the National Trust, measuring its environmental impact has always been an important consideration given that the organisation was established for conservation purposes. However, measuring social and economic impact assessments are relatively new considerations, at least as far at the National Trust are concerned, even if there have been stated intentions to take these impacts into consideration. The present research then could be usefully combined with an environmental impact assessment and a Social Return on Investment (SROI) to demonstrate the economic, environmental and social value of a building conversion project.

A local economic impact assessment could also sit alongside historic building surveys and landscape assessments in the development of benchmarking criteria to help measure the performance of traditional rural working building conversion projects. A 'conversion score' would be based on factors including: the impact of the conversion on the building fabric, the impact of the conversion on the appearance of the building in the landscape and the local economic impact of the building conversion. This would provide a set of best practice indicators for the owners of traditional rural working buildings.

7.7 Conclusions

This research has examined the local economic impacts of the conversion and new use of traditional rural working buildings in England. From a sample of 30 buildings, the local economic impacts of the conversion works were analysed for 22 of the buildings and the local economic impacts of the new use were analysed for 25 of the buildings. Primary data was collected from: the building owners, the building users, and firms that supplied goods and services to the conversion works and the building users. The data was aggregated according to various distinguishing characteristics of the buildings and it was analysed using adapted LM3 models. The adaptations enabled factors such as additionality and attribution to be accounted for. There was also an estimation of expenditure beyond the third round and a sensitivity analysis was conducted to give a range within which a particular multiplier lies.

Overall, the re-use of the buildings was found to have stronger local income multipliers than the conversion works, but the difference is not particularly large. There is a greater contrast between the employment multipliers with the conversion works having the greater overall local employment effect. For the conversion works, the building characteristics that the multipliers were modelled for were: building type, building size (floor area), designation, SIC class (new use), and tenure. The strongest income multipliers were observed for: animal housing buildings, buildings with a floor area less than 464m^2, listed buildings, buildings being converted for manufacturing use and let buildings. The stronger employment multipliers were seen for: 'other' building types, buildings with a floor area less than 464m^2, listed buildings, buildings being converted for 'other' uses, and buildings that were kept in-hand.

The building re-use characteristics were: building type, business size (turnover), user indigeneity, length of occupancy, SIC class of use, and tenure. The stronger income multipliers were found for: animal housing buildings, building users with a turnover greater than £75,000, building users who were not originally from the local area, building users who had occupied the building for less than 5 years, the A&FS SIC class and let buildings. The stronger employment multipliers were seen for: CS&P buildings, building users with a turnover greater than £75,000, building users who were originally from the local area, building users who had occupied the building for less than 5 years, buildings in use for manufacturing and let buildings.

The findings indicate that although the local economic impacts were not particularly large, converting and re-using redundant traditional rural working buildings may still have a role to play in underpinning economic activity in rural areas. Therefore these buildings can be said to have instrumental value as their conversion and re-use produces some degree of wider economic benefits for the local economy. The importance of grant funding was noted in enabling the conversion works to take place and it was also noted that in some cases the building would have been lost had the conversion works project not taken place.

It was observed that both the conservation policy and practice of the National Trust and the rhetoric and operation of English planning policy accommodate the notion of heritage assets having multiple values. Both acknowledge the importance of protecting what gives heritage assets their intrinsic value and both encourage conversion and re-use in heritage conservation management to provide wider benefits (instrumental value). The examination of the income and employment multipliers according to the buildings' designation showed how the intrinsic values and instrumental values can sit together and the National Trust's best practice case studies demonstrated this in practice.

Finally, as the findings identify for the National Trust some building characteristics to look for when considering the local economic impact of traditional rural working building conversion and re-use projects, they were used to produce a guidance note, in consultation with the National Trust, on considering the local economic impact of future traditional rural working building conversion projects.

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APPENDIX 1

NATIONAL TRUST CONSERVATION PRINCIPLES

Principle 1: Significance

We will ensure that all decisions are informed by an appropriate level of understanding of the significance and 'spirit of place' of each of our properties, and why we and others value them.

Principle 2: Integration

We will take an integrated approach to the conservation of natural and cultural heritage, reconciling the full spectrum of interests involved.

Principle 3: Change

We will anticipate and work with change that affects our conservation interests, embracing, accommodating or adapting where appropriate, and mitigating, preventing or opposing where there is a potential adverse impact.

Principle 4: Access and engagement

We will conserve natural and cultural heritage to enable sustainable access and engagement for the benefit of society, gaining the support of the widest range of people by promoting understanding, enjoyment and participation in our work.

Principle 5: Skills and partnership

We will develop our skills and experience in partnership with others to promote and improve the conservation of natural and cultural heritage now and for the future.

Principle 6: Accountability

We will be transparent and accountable by recording our decisions and sharing knowledge to enable the best conservation decisions to be taken both today and by future generations.

APPENDIX 2

THE NATIONAL TRUST'S PLANNING PRINCIPLES

1. The Trust will seek to influence the Planning system at local and national levels in accordance with our statutory purpose and will promote an integrated approach to sustainable development.
2. The Trust will support spatial Planning which takes a holistic approach to the environment and its resources, which plans long-term, which looks at the landscape, catchment or coastal 'cell' scale, and which takes into account climate change implications.
3. The Trust will promote the wise management of the natural environment and built and cultural heritage, for this and future generations, and will support high design quality.
4. The Trust will seek to protect wild and remote landscapes from built development or urbanisation, especially where it impacts on Trust properties.
5. In managing its land through Property Management Plans, the Trust will support and help achieve the objectives of any designated landscape, wildlife, or historic sites and areas.
6. The Trust will object to land use or marine-based proposals that have a significant adverse impact on its properties and their settings and context, or on its wider interests.
7. When proposing development on Trust land to meet justified needs the Trust will use a sustainable construction approach, such as:
    - minimising resource use and generation of waste;
    - being energy efficient;
    - minimising or preventing all types of pollution and risk of flooding;
    - safeguarding important wildlife, landscape and historic interests;
    - respecting local/regional distinctiveness;
    - where practical supporting local sources for goods and services; and
    - encouraging community involvement and access.

APPENDIX 3

THE NATIONAL TRUST'S RURAL POLICY PRINCIPLES

- The Trust strongly believes that environmental quality should be placed at the heart of rural policy.

- Policies and practice should recognise that the natural and human resources of an area are the basis for sustainable development and that a conserved countryside depends on the vitality of local communities. These communities should be built on the distinctiveness and diversity of rural areas, and have access to locally-delivered, tailor-made solutions.

- Farming as an activity will remain critically important as the land use of a large proportion of the United Kingdom. Communities based on agriculture will continue to lie at the heart of many rural areas. For these areas a more sustainable system of support and land management is needed.

- While it may be convenient to distinguish between urban and rural communities, there are many similarities. The Trust believes that town and countryside can be brought closer together via strategic and local planning and through education.

APPENDICIES 4 TO 8

RELEVANT FINDINGS FROM PREVIOUS STUDIES

Appendix 4: AGRI-ENVIRONMENT SCHEMES

Appendix 5: RURAL-URBAN LINKAGES

Appendix 6: NATURAL HERITAGE

Appendix 7: AGRICULTURE

Appendix 8: OTHER STUDIES

Appendix 4

Agri-environment: whole schemes and individual components						
Study	**Method**	**Duration**	**Scale**	**Sample**	**Data collection**	**Findings**
The socio-economic effects of the Countryside Stewardship scheme (Harrison-Mayfield *et al.* 1998)	Input-Output modelling for income and employment; Spatial tracking. 6 case-study farms to determine local effects: Within 15km Settlements <10,000	**Survey date:** 1995 **Period covered:** 1991-1995 **Comment:** Activity since entering the scheme	Country: England Regions: 8	**Unit:** CSS agreement holders **Frame:** Live CSS agreements **Selection:** Stratified by geographic area, total value and type of payment **Size:** 1,000 **Response:** 460	Postal questionnaire; Case study interviews; Farm accounts	- 27% change in household income with 60% indicating a positive change. - Net increase of 31 FTE farm-related jobs. - A total of 479 FTEs jobs nationally, including direct and induced effect. - Little change in input purchasing and output sales patterns.
Measuring the social and economic impacts of Lake District ESA grants for the repair of traditional farm buildings (Edwards *et al.* 2005)	Adapted LM3 model for 3 spatial zones: Within the ESA boundary, within the wider area and elsewhere	**Survey date:** 2005 **Period covered:** 1998-2004 **Comment:** Completed conservation plans 1998-2004	Five study areas within the Lake District ESA	**Unit:** ESA agreement holders **Frame:** ESA agreement holders with completed conservation plans **Selection:** Stratified by geographic area, grant value and number of traditional buildings renovated **Size:** 44 **Response:** 42	Face-to-face interviews; Conservation plan file analysis	- Between 1998-2004 scheme resulted in a minimum direct injection of £3.41m to the local economy. - Scheme generated between £8.5m and £13.1m for the local economy, with minimum income multiplier of 2.49. - 30 contractors had worked on grant-funded building restoration projects. -Nature of contracting businesses meant most indirect and induced expenditure remained in the local economy. -Viability of contracting businesses increased, with 8 out of 9 contractors citing an increase in turnover of at least 16%. - Scheme had created between 25 and 30 FTE jobs in the local economy.

Appendix 4 cont.

Agri-environment: whole schemes and individual components						
Study	**Method**	**Duration**	**Scale**	**Sample**	**Data collection**	**Findings**
A socio-economic study of grant-funded traditional drystone wall and farm building restoration in the Yorkshire Dales National Park (Courtney *et al.* 2007a)	Adapted LM3 model for 3 spatial zones: Within the National Park, within the wider area and elsewhere	**Survey date:** 2006 **Period covered:** 1998-2004 **Comment:** Completed projects 1998-2004	Yorkshire Dales National Park	**Unit:** Scheme agreement holders **Frame:** Agreement holders with completed works **Selection:** Stratified by scheme and value **Size:** 60 **Response:** 53	Face-to-face interviews; File analysis	**-** Between 1998-2004 building schemes generated between £4.27m and £4.74m for the local economy. - Walling schemes generated between £2.81m and £4.38m for the local economy. - Income multiplier for building schemes was 1.65 and for the walling schemes was 1.92. -Income effects accrued on the wider area for all building schemes were between £6.42m and £7.10m and for walling schemes were between £3.46m and £5.41m. -74 FTE jobs were created in the National Park and its wider local area, 41 FTE jobs by building schemes and up to 33 FTE jobs through walling schemes.
Estimating the incidental socio-economic benefits of Environmental Stewardship schemes (Mills *et al.* 2010)	Adapted LM3 model for 2 spatial zones: 40 minute drive time and 60 minute drive time from agreement holder location	**Survey date:** 2009 **Period covered:** January 2005-August 2009 **Comment:** only included agreements which started before August 2008 so as to ensure work had commenced.	Analysis conducted at 3 levels: farm level, scheme option level and aggregate level (Government Office Regions, landscape typology)	**Unit:** ES agreement holders **Frame:** ES agreement holders which had commenced work on their agreements. **Selection:** Stratified by landscape typology, type of scheme and scheme value **Size:** 585 **Response:** 360	Telephone and face-to-face interviews	- National level income and employment multipliers for all ES schemes were 1.42 and 1.25 (40 minute drive time) and 1.73 and 1.28 (60 minute drive time) respectively. - 80% of all ES expenditure by agreement holders is spend locally. - Farms were able to absorb much of the additional workload generated by ES schemes. -70% of surveyed businesses reported some increase in turnover as a result of ES schemes and they were able to absorb much of the additional demand without recruiting additional staff.

Appendix 5

Rural-urban linkages						
Study	**Method**	**Duration**	**Scale**	**Sample**	**Data collection**	**Findings**
Rural-urban interdependencies: Analysis using an inter-regional SAM model (Roberts 1998)	Inter-regional SAM-based model for urban and rural Grampian	**Survey date:** N/A **Period covered:** 1989-1991 **Comment:** Not stated	Region: Grampian in Scotland	**Unit:** Households and businesses **Frame:** Grampian region **Selection:** N/A **Size:** N/A **Response:** N/A	Scottish Input-Output tables (1989); Agricultural Census and Farm Accountancy Survey; Census of Employment; population Census (1991); Family Expenditure Survey	**-**The rural area was found to have slightly lower input-output multipliers. - Rural households were found to have greater income-earning potential than urban households. - Increased commuting by rural residents to urban employment implies that urban industries are increasingly dependent on rural households for provision of factor services.
The role of small towns in the local economy and some implications for development policy (Courtney and Errington 2000)	First round linkage analysis for 2 case-study towns with 3 spatial zones: Town Hinterland Elsewhere	**Survey date:** 1998 **Period covered:** March-April and September-October **Comment:** Not stated	Sub-regional	**Unit:** Businesses **Frame:** Listings in the Yellow Pages BT Business Data Base **Selection:** Stratified by type **Size:** 1072 (total) **Response:** 288 (total)	Self-completion postal questionnaires;	**-** The remote rural town is more strongly integrated into its local economy than is the accessible town. -Service sector, consumer service and non-agricultural firms are more strongly tied to locality. -Independently owned firms purchase more supplies locally than national and international branch plants.
The economic base of rural areas: a SAM-based analysis of the Western Isles 1997 (Roberts 2003)	SAM modelling	**Survey date:** 1997 **Period covered:** Not stated **Comment:** Not stated	Region: Western Isles of Scotland	**Unit:** Households and businesses **Frame:** Population of the Western Isles **Selection:** Not stated **Size:** Not stated **Response:** 97 households, 179 businesses	Surveys and interviews	- Key industries are tourism, fish farming and the public sector. - Additional tourist demand has the greatest potential for stimulating factor income, household income and employment - The Western Isles economy is strongly reliant on state transfers

Appendix 5 cont.

Rural-urban linkages						
Study	**Method**	**Duration**	**Scale**	**Sample**	**Data collection**	**Findings**
Small towns as 'sub-poles' in English rural development: Investigating rural-urban linkages using sub-regional social accounting matrices (Courtney *et al.* 2007b)	Sub-regional SAM modelling for 4 case-study towns with 8 spatial zones: Town Up to 7km from town 6 other zones based on Nomenclature of Territorial Units for Statistics (NUTs) level boundaries	**Survey date:** 2002-2003 **Period covered:** September 2002-May 2003 **Comment:** Not stated	Sub-regional	**Unit:** Firms **Frame:** Listings in the BT Business Data Base **Selection:** Not stated **Size:** 2143 (total) **Response:** 418 (total)	Structured postal questionnaires	**-** Small and medium-sized towns do not act as 'sub-poles' within English rural economies. - Towns provide important employment functions for local residents. - Strongest locally integrated sectors are banking and financial services, chemicals, plastics, rubber and glass and machinery, computing, food and drink.

Appendix 6

Natural heritage						
Study	**Method**	**Duration**	**Scale**	**Sample**	**Data collection**	**Findings**
The role of natural heritage in rural development: An analysis of economic linkages in Scotland (Courtney *et al.* 2006)	Multiplier analysis of income and employment in 4 case-study areas in Scotland. Isochrones used to mark a boundary of a 1-hour travel (drive) time from a key focal point.	**Survey date:** 2001 **Period covered:** Not stated **Comment:** Not stated	Sub-regional. Boundaries drawn to ensure each study area had a population of around 500 or more individual businesses and organisations.	**Unit:** Businesses **Frame:** Commercial database and key contacts **Selection:** Census **Size:** 2,454 **Response:** 464	Self-completion postal questionnaire	**-** Natural heritage 'reliant' activities had the greatest potential for generating local economic benefits through their propensity to source locally. - These activities also contribute more significantly to the economic base of the study areas through sales of goods and services to visitors. - Small firms were found to exhibit strong ties both to local markets and to suppliers. - Independent firms were found to sell more locally than branch plants but they were not found to source more locally.
Economic impact of the National Parks of Wales (Hyde and Midmore 2006)	Welsh national input-output tables modified with local data on employment and centres of gravity based on Annual Business Inquiry data	**Survey date:** Not stated **Period covered:** Not stated **Comment:** Not stated	National Parks in Wales	**Unit:** Businesses **Frame:** Sectors which have both environmentally based and other economic activity **Selection:** Not stated **Size:** Not stated **Response:** Not stated	Annual Business Inquiry supplemented with group, face-to-face and telephone interviews	**-** The environment of the 3 National parks in Wales supports 11,926 jobs; produces a total income of £177m and generates £205m GDP per annum. - Over 38% of National Park jobs are linked to the environment. - 17% of indirect employment and 9% of indirect income is retained within the parks.
The economic impact of National Parks in the Yorkshire and Humber region (Council for National Parks 2006)	Survey approach conducted in National Park areas and National Park 'gateway towns'	**Survey date:** Not stated **Period covered:** Not stated **Comment:** Not stated	Yorkshire and Humber regions	**Unit:** Businesses **Frame:** Businesses within National Park areas and 'gateway towns' **Selection:** Not stated **Size:** Not stated **Response:** 419 (total)	Structured telephone interviews	- The Parks' businesses generate £1.8 billion in sales annually, supporting over 34,000 jobs and around £576 million of Gross Value Added. - Total visitor expenditure of £660 million is estimated to support around 12,000 jobs and generate further indirect economic activity. - National Park designation was found to have had a major positive impact on a quarter of all surveyed businesses, which were estimated to support over 8,000 jobs.

Appendix 7

Agriculture						
Study	**Method**	**Duration**	**Scale**	**Sample**	**Data collection**	**Findings**
The impact of the agricultural industry on the rural economy – tracking the spatial distribution of the farm inputs and outputs (Harrison 1993)	First round linkage analysis using spatial tracking technique to examine distance over which transactions were made.	**Survey date:** 1990 **Period covered:** Harvest year 1989 **Comment:** Farming year 1989 was characterised by a mild winter and a dry hot summer, making harvesting conditions easy but yields lower	Farm level	**Unit:** Farm businesses **Frame:** Farm Business Survey (FBS) respondents in Reading province **Selection:** Convenience sampling to suit investigational officers **Size:** 350 in FBS **Response:** 52 selected	Farm accounts analysis	**-** The feed industry provided the highest value of produce from rural areas - Cereal was the main farm output being sold to rural areas. - Smaller farms appeared to have more transactions with rural areas. - Pig and poultry farms had the greater backward links with rural firms. - The majority of transactions took place within a small local radius of the farms and also with smaller, more rural settlements.
The contribution of organic farming to rural development: An exploration of the socio-economic linkages of organic and non-organic farms in England (Lobley *et al.* 2009b)	First round linkage analysis for 5 spatial scales: Locally (within 10 miles), County;, Regional, National, And International. 3 measures of local embeddedness: distance from place of birth; distance from majority of close family; and distance from majority of close friends.	**Survey date:** 2004 **Period covered:** Early March to mid-May 2004 **Comment:** Not stated	Regional: Northern England and East Anglia. County: Devon	**Unit:** Farm businesses **Frame:** Farm businesses in England **Selection:** Stratified by geographic area and farm type **Size:** 1684 **Response:** 724	Self-completion postal questionnaire	**-** Organic farmers are less well socially embedded in their local communities. - Organic farms generate more employment and employ a greater proportion of non-family FTEs. - At an aggregate level the economic connectivity of organic and non-organic farms is not dissimilar. - Organic horticultural farm businesses are amongst the most likely to operate short, local supply chains. - It is not organic status or farm type alone or in combination that is the most useful indicator of a farm's local economic connectivity and rural development potential but a combination of these factors plus the way in which the business configures its marketing routes.

Appendix 7 cont.

Agriculture						
Study	**Method**	**Duration**	**Scale**	**Sample**	**Data collection**	**Findings**
Analysis of socio-economic aspects of local and national organic farming markets (Lobley *et al.* 2009a)	Adapted LM3 modelling with 2 sets of models: 'Aggregate' (total farm sales as direct effects) and 'rural development' effects) and 'rural development' (income from sales made outside the local economy). Isochrones used to give boundaries of 30 minute and 60 minute travel time from the farm.	**Survey date:** Not stated **Period covered:** Not stated **Comment:** Not stated	Country: England and Wales.	**Unit:** Organic producers **Frame:** Location quotient analysis identified 3 study areas (regions) **Selection:** Organic producers who completed the postal questionnaire; Defra's database of organic producers; snowballing and purposive sampling. **Size:** Not stated **Response:** 61	Face-to-face interviews; supplementary data from producer surveys and Defra's database of organic farm holdings.	- On aggregate all organic farms in the sample were found to have income and employment multipliers which ranged from 1.66 to 1.97 and 1.28 to 1.35 respectively for a 30 minute travel time from the farm. - The aggregate multipliers for a 60 minute travel time from the farm ranged from 2.13 to 2.62 and 1.36 to 1.46 for income and employment respectively. - As a driver of rural development the organic farming sector appeared to be fairly efficient at obtaining external income through non-local marketing and generating further income through local sourcing and employment.

Appendix 8

Other studies						
Study	**Method**	**Duration**	**Scale**	**Sample**	**Data collection**	**Findings**
The economic impact of alternative types of rural tourism (Slee *et al.* 1997)	Input-Output modelling for direct and indirect impacts and Keynesian Multiplier analysis for induced impacts. 2 levels of analysis form 2 case study areas: core area and extended area which covered the area within 25km of core area boundary	**Survey date:** 1994 **Period covered:** June – October 1994 **Comment:** Interviews conducted daily	Administrative boundaries	**Unit:** Individual and groups of tourists **Frame:** Tourists present each day **Selection:** Tourists selected through quota sampling; businesses were stratified by type **Size:** 1800 tourists and 135 businesses **Response:** 120 businesses (89%)	Face-to-face interviews	- Income multipliers of 1.52 and 1.47 for 'soft' and 'hard' accommodation types respectively. - 'Soft' tourism generates higher local income and employment multipliers. - Spend per head is higher for 'hard' tourists.
Estimating the potential economic impact of implementing the UK Biodiversity Action Plan (BAP) for species rich hedgerows in Devon (Mills *et al.* 2000)	Multiplier analysis	**Survey date:** 2000 **Period covered:** 2000-2005 **Comment:** 5 year period	County: Devon	**Unit:** Hedge contractors **Frame:** Compiled list from various sources **Selection:** Stratified by protected area **Size:** 40 **Response:** 30	Telephone interviews; Key informant interviews	- A hypothetical injection of £1m per year for 5 years for hedge restoration work would generate £2.17m for the Devon economy. - The employment impact would be 27 FTE jobs or 32 FTE jobs once indirect and induced impacts were taken into account and the employment multiplier was 1.2. - Most jobs would go to local contractors who work within a small radius.

Appendix 8 cont.

Other studies						
Study	**Method**	**Duration**	**Scale**	**Sample**	**Data collection**	**Findings**
The role of households in sustaining rural economies: a structural path analysis (Roberts 2005)	SAM/Structural path analysis	**Survey date:** 1997 **Period covered:** Not stated **Comment:** Not stated	Region: Western Isles in Scotland	**Unit:** Households **Frame:** Population of the Western Isles **Selection:** Not stated **Size:** Not stated **Response:** 97 households, 179 businesses	Surveys and interviews	**-** Households with children play the most significant role in connecting the local economic system. - Households with no children feature prominently as transmitters of influence between particular production sectors such as agriculture-to-catering. -Retired households are weaker transmitters of economic influence.
Measuring the local economic impact of National Health Service procurement in the UK: an evaluation of the Cornwall Food Programme and LM3 (Thatcher and Sharp 2008)	LM3 and LM2 modelling	**Survey date:** 2004 **Period covered:** Financial year 2003-2004 **Comment:** Not stated	County: Cornwall	**Unit:** Catering businesses **Frame:** Cornwall-based catering suppliers and their employees **Selection:** Catering suppliers and staff contracted to hospital catering **Size:** 11 suppliers and 123 staff **Response:** 4 suppliers and 2 staff	Surveys and interviews	- The Cornwall Food Programme had a considerable local economic impact with an LM3 score of 1.81 and an LM2 score of 1.52 - LM3 modelling is a useful indicator that local sourcing in itself has benefits. - LM2 modelling can provide a reliable illustration of local economic gains with less effort and only some loss of detail compared to LM3 modelling.

APPENDICES 9 TO 12

QUESTIONNAIRES

Appendix 9 CONVERSION WORKS QUESTIONNAIRE

Appendix 10 BUILDING USER QUESTIONNAIRE

Appendix 11 CONTRACTOR QUESTIONNAIRE

Appendix 12 SUPPLIER QUESTIONNAIRE

Local Economic Impacts of the Conversion and Re-use of Traditional Rural Working Buildings

Conversion Works Survey

Questionnaire No:	
Name of Interviewee:	
Job Title:	
Name of Property:	
Name and Address of Building or Project:	
Telephone No:	
Date and time of interview:	

Records ☐ **Recall** ☐

Introduction
Thank you very much for agreeing to be interviewed. As I explained in my original email, the National Trust are co-funding my PhD research on the economic impacts of the conversion and re-use of traditional rural working buildings on the local economy. The results of my study will enable the Trust to estimate the local economic impact of planned traditional rural building conversion projects and thereby foster local economic growth in rural areas.

Everything you tell me will be treated confidentially and the results of the survey will be aggregated and conclusions reported as part of the case study. I would under no circumstances release any individual information about the conversion works to anyone else and I stress this because some of the questions cover the financial aspects of the works.

General information about the building project

1. Please provide details about the building and the conversion works

   (Please use separate recording sheet for Q1)

2. What was the aim and justification for this project? (Please include details of any impact assessments that were carried out)

   (Probe as to whether the aim was achieved & why conversion instead of new build)

Sources of Funding

3. Please list the source(s) of funding for the project

Source of funding	Value
	£
	£
	£
	£
	Total: £

4. What would have happened to the building(s) had this funding not been secured? (Please provide details about the use and maintenance)

Building	Use	Maintenance? (Yes/no)

5. What would have happened to the National Trust/your contribution if it had not been used for this project:

Used within 30 minute travel area ☐
Used elsewhere ☐
If used within 30 minute area:

Please state what the National Trust/your monies would have been used for

Building conversion works

6. Please indicate the proportion of all conversion works by value that were carried out by a) National Trust Direct Labour Teams/yourself and b) building contractors, **in terms of total expenditure.**

	a) National Trust Direct Labour/yourself	b) Building contractors	Total
All conversion works			**100%**

If 100% was carried out by building contractors, go to Q9

7. If some or all conversion works have been carried out by a National Trust Direct Labour Team or yourself, were any extra people employed to help specifically with this work?

   Yes ☐
   No ☐ **If no, go to Q9**

If yes:

8. Please provide further information about these employees:

Occupation	Wages p/w	Length time employed	Left previous job in local area?	Left previous job in county?	Place of residence

9. Please provide further details about how the total renovation funds were spent, as well as details about any subsequent expenditure on renovated buildings.

Central to this interview is the need to find out the impact of the works on the local economy, and for that I need to establish how the conversion funds were spent and where that money went in the local area.

Please provide the approximate amount spent on each item (i.e. 'staff costs'), then divide each by the total conversion works monies **(National Trust contribution + any grants)** to determine % spending for each item. Sub-total's a) - d) should add-up to the total spent on conversion works.

For each item of expenditure, please tell me where the money was spent. If items were delivered, I need to know the location of the supplier/distributors/manufacturer/service provider, according to the two boundaries. Please use the map as a guide.

NB If contractors carried out all of the work, only section c) needs to be completed.

(Use separate recording sheet for Q9)

10. What influenced contractor and supplier selection? Please rank the following from **1 (most influential) to 4 (least influential)**

Influence	Rank
Cost	
Proximity to site	
Reputation/quality	
Other (please specify)	

a) Further comments on contractor and supplier selection

(Probe for 'Going Local' in procurement decisions)

11. If the project had not obtained any external funding, would any works have taken place at all?

Yes ☐
No ☐ **if no, go to Q13**
Not sure ☐ **if not sure, go to Q13**

If yes:

12. Please indicate the proportion of all works that would have taken place in terms of total expenditure

...........................%

13. If the project had not obtained the external funding, would any other works have been carried out on the farm/estate? (Please tick all that apply)

Activity	
Other building improvements	
Farm/estate diversification project	
Farm/estate expansion	
Other (please specify)	

14. Approximately what proportion of this contribution would have been spent in the local area **(see map)**?

..........................%

Impact of the building conversion on the farm/estate

15. Are any of the converted buildings let for commercial purposes?

Yes ☐
No ☐ **if no, go to Q17**

If yes:

16. Please provide details **(please use separate recording sheet for Q16)**

Other benefits of the conversion works

17. What have been the benefits of the conversion works to the farm/estate?

(Probe for increased income, heritage and conservation, efficiency, capital values, social public/visitor impacts, relationship with estate tenants)

18. Are there any further impacts of the conversion works that might impact on the future of the farm/estate business that have not yet been mentioned?

(Probe for stability, future development, diversification)

19. Are there any further comments or observations that you would like to make about the impact of the conversion works on the local economy of the area?

(Probe for ease of obtaining supplies, employment, sub-contracting)

Your Personal household expenditure

20. Please estimate your personal household expenditure according to where it takes place

Item	Within a 30 minute travel time	County	Elsewhere	Mail order/ internet/ other	Total
Example	*25%*	*50%*	*25%*	*0%*	*100%*
Food					100%
Clothing					100%
Durables					100%
Services/other					100%

21. How is all of your income spent?

Monthly expenditure	%
Food, clothing durables & services (all of items in Q29)	
Income tax and NI	
Rent/mortgage	
Household bills & Council Tax	
Loan repayments and savings	
Total income	**100%**

Thank you for your time

1. Building works information sheet

a) Building name:____

b) Location:

Property Name: ____

NT region: SW SE M EE Y&NE NW

County: ____

c) Building type (e,g, *dairy*, *barn* etc):____

d) Gross floor area (m^2): ____________________ Number of floors:____________

e) Designation:____

f) Tenure:____

g) Brief history of building before conversion (age, construction materials, function):____

h) Background to conversion (decision-making process, events):____

i) Completion date (month & year): ______________________________

j) Conversion details (what was done, materials used etc):__________________

k) Where there any planning issues and if so, what impact did they have?

l) Description of new function:

m) Would you mind if I used some photographs and plans of your building to illustrate my case study?

Yes ☐
No ☐

Letting of converted buildings for commercial purposes

Please provide details about converted buildings that you have subsequently let for commercial purposes
(For example)

Building	Commercial Use	Name & Address of Firm	Taken business from elsewhere in local area?	Rent per Annum
Oast House	*Offices / accountants*	*Parker & Co.* *1 High Street* *Kendal* ***Tel 01234 567891***	*Possibly, several accountancy firms in local area*	*£11,000.00*

Building	Commercial Use	Name & Address of Firm	Taken business from elsewhere in local area?	Rent per Annum
				£
				£
			TOTAL RENT Received p.a	**£**

Please provide further details about how the business spends money on traditional rural building projects

Please provide the total spend on each item (i.e. ‘staff costs’) in relation to traditional rural building projects only. You may find it easiest to fill in the expenditure column first and then do the columns relating to where the expenditure went.

Item	**Expenditure on projects**	**% 30 min. travel time**	**%County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local (within 30 minute travel area) business/es you use for each category**
Example	*£15k*	*15%*	*0%*	*85%*	*0%*	*100%*	*Tools Co., Bristol*
a) Staff (excluding sub-contractors)	**Expenditure on projects**	**% 30 min. travel time**	**% County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local business/es you use for each item**
Staff costs (excl. NI & pension)						100	
NI & pension				100	0	100	
Sub-total a)						100	
b) Supplies	**Expenditure on projects**	**% 30 min. travel time**	**%County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local (within 30 minute travel area) business/es you use for each item**
Raw Materials 1 (please specify)						100	
Raw Materials 2 (please specify)						100	
Raw Materials 3 (please specify)						100	
Other inputs						100	
Other inputs						100	
Sub-total b)						100	

c) Type* of sub-contractors	Expenditure on projects	% 30 min. travel time	%County	% UK	% Elsewhere	Total %	Please name the main local (within 30 minute travel area) business/es you use for each category
						100	
						100	
						100	
Sub-total c)						100	
d) Other expenditure	**Expenditure on projects**	**% 30 min. travel time**	**%County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local (within 30 minute travel area) business/es you use for each category**
Fuel & utilities						100	
Plant & machinery repairs						100	
Insurance						100	
Additional taxes**						100	
Other***(please specify)						100	
Sub-total d)						100	
Total a+b+c+d						100	

*Please specify type of sub-contractor in left hand column, i.e. electrician, plumber, landscaper, joiner etc.

**VAT, Corporation Tax and Business Rates, ***Might include loan repayments, rent/mortgages, fees and bonuses, drawings etc.

Local Economic Impacts of the Conversion and Re-use of Traditional Rural Working Buildings

Building User Survey

Questionnaire No:	
Name of respondent:	
Address of building:	
Telephone No:	
Email address:	
Web address:	
Date and time of interview:	

Records ☐ **Recall** ☐

Introduction
Thank you very much for agreeing to be interviewed. As I explained in my original email, the National Trust are co-funding my PhD research on the economic impacts of the conversion and re-use of traditional rural working buildings on the local economy. The results of my study will enable the Trust to estimate the local economic impact of planned traditional rural working building conversion projects and thereby foster local economic growth in rural areas.

Everything you tell me will be treated confidentially and the results of the survey will be aggregated and conclusions reported as part of the case study. I would under no circumstances release any individual information about you or your business/activity to anyone else and I stress this because some of the questions cover the financial aspects of the works.

Use of the building

Please could you give me some general information about yourself and the use of the building?

1. What is your status – are you the owner/manager, a partner or an employee of the business/organisation that uses the building? *(tick one box only)*

	Full-time	**Part-time**	
Owner/manager			
Partner			
Employee			
Other (specify)			

2. Where do you live? ___________________________

   If within 30 minute drive time area:

   a) How long have you lived there? ________________ years

   b) Where did you grow up? ___________________________

3. What is the main use of the building? *(tick one box only)*

Type of use	**Main use of this building**
National Trust commercial enterprise (please specify)	
Tenant commercial enterprise (please specify)	
Other National Trust use (please specify)	
Other use by tenant (please specify)	

4. How long has this been the main use of the building?

   ___________ Years

5. Is the main use of the building stated in Q3 a new use to the estate/tenant? (i.e. has the building conversion resulted in any additional activities on the farm/estate?)

   Yes ☐
   No ☐ **If no, please go to Q14**

If yes:

6. Please estimate the change in turnover (i.e. sales) arising from this new or additional use.

   £ __________________ **OR** N/A ☐

7. Has this use resulted in the recruitment of additional staff?

   Yes ☐
   No ☐ **If no, please go to Q9**

If yes:

8. Please provide further information about where these employees were recruited from:

Occupation	Wages p/w	Length time employed	Left previous job in local area?	Left previous job in county?	Place of residence

9. Has this use resulted in any additional expenditure on goods and services (i.e. supplies) excluding labour?

   Yes ☐
   No ☐ **If no, please go to Q11**

If yes:

10. Please estimate the change in expenditure on goods and services (i.e. supplies, excluding labour) arising from this new or additional use.

    £ _________________
11. Where on the farm/estate was this activity previously located?

12. Why was the activity moved to its present location?

13. What effect has changing the location of the activity had on the efficiency of the activity?

Increased efficiency ☐
Decreased efficiency ☐

a. Please state why

14. If the activity had not been moved to/started at its present location, what would have been the likely outcome?

Outcome: the activity would have:	**1**	**2**	**3**	**4**	**5**	**N/A**
Continued at the same level of turnover						
Taken a drop in turnover by _______ %						
Been forced to relocate elsewhere on the farm/estate						
Been forced to relocate within the 30 minute area						
Been forced to relocate beyond the 30 minute area						
Ceased altogether						
Increased the number employed by ______ employees						
Decreased the number employed by ______ employees						
Provided more training for its employees						
Provided less training for its employees						
Taken on more apprentices (estimated no______)						
Taken on less apprentices (estimated no_____)						

1 = Definitely, 2 = Possibly, 3 = Unsure, 4 = Probably not, 5 = Definitely not

Employment and turnover

15. Including yourself, how many people are employed at this address? (Including working proprietors)

Employee Type	Persons		Of which, how many: Live within 30min boundary	Live within county	Left previous job in 30min boundary
Regular full-time (>30hrs/week)					
Regular part-time (<30hrs/week)					
Seasonal/casual					
Volunteer					
Total					

a. *This table might be easier for seasonal/casual workers & volunteers*

Employee Type	Persons	Avg. no. of man weeks per year		Of which, how many: Live within a 30 minute travel time
Seasonal/casual				
Volunteer				
Total				

16. What is the nature of your establishment (for example, *independent firm*)?

____

17. Is this a family owned business?

Yes ☐
No ☐

18. How long has the business/present building use been located in this area?

__________ Years

19. What is the main source of income for your use of the building?

Sales of goods or services	☐	
National Trust estate budget	☐	**Please go to Q22**
Other non-commercial income (please specify)	☐	**Please go to Q22**

____

20. What is the average annual turnover (i.e. sales) of your business?

£ _______________

21. What proportions of all sales (by value) are to customers in the following areas?

	30 min. travel time	County	Elsewhere	Total
Total value of sales				100%

Please go to Q23

22. What is the approximate average annual budget for your department/team?

£ ______________

a. Approximately what proportion of this budget is used for activities which take place in/from this converted building?

_____________ %

23. Approximately what proportion of your average annual turnover or activity budget is spent on goods and services (i.e. supplies), excluding labour and sub-contracted work?

___________ %

Or

a. What is the approximate average annual spend on goods and services (i.e. supplies), excluding labour and sub-contracted work?

£ _____________

24. What proportion of all the goods and services (i.e. supplies, excluding labour and sub-contracted work) you purchase are from the following areas? (see map)

	30 min. travel time	**County**	**Elsewhere**	**Total**
Total value of purchases				**100%**

25. Do you encounter any problems obtaining supplies?

Yes ☐ **If yes, please go to Q25a**
No ☐ **If no, please go to Q25b**

If yes:

a. Please could you describe any problems/issues with respect to sourcing?

(probe for shortages, the need to source non-locally etc)

b. What criteria do you use to select your suppliers and why?

26. Please provide further details about all business/activity expenditure, including staff, supplies and contracted work.
(use separate recording sheet for Q26)

Impact of building and location on business/activity

The following questions relate to your perceptions about the impact of using a National Trust traditional farm building. Please provide any information or views that you feel are relevant. This will help me to paint a clearer picture of local economic impacts arising from the reuse of National Trust traditional farm buildings.

27. Why was this building and this location chosen for this business/activity?

If the building is not used for a commercial enterprise then please go to Q29

Otherwise:

28. Are there any benefits of using a (National Trust) traditional farm building for your business?

29. Are there any further comments or observations you would like to make about the impact of using a National Trust traditional farm building?

30. Are there any further comments or observations you would like to make about the National Trust and the local economy?

Your impact on the local community

The following questions relate to your impact on the local community. Please provide any information or views that you feel are relevant. This will help me understand the social linkages between the user of the building and the local community.

31. Where do the majority of your close family live?

____

32. Where do the majority of your close friends live?

____

33. Are you a member of any industry or community groups (for example, *NFU, CLA, local community groups, local council, political party, sports club*)?

Yes ☐
No ☐ **If no, please go to Q34**

If yes:

Please state what groups you are involved in and the length of your involvement.

Industry or community group	**Length of involvement (years)**

34. Do you participate in any community activities (for example, *regular sport/exercise, church/worship, community events, visit local pubs/restaurants*)?

Yes ☐
No ☐ **If no, please go to Q35**

If yes:

Please state what activities you participate in.

Your personal household expenditure

35. Please estimate your personal household expenditure according to where it takes place

Item	**Within a 30 minute travel time**	**County**	**Elsewhere**	**Mail order/ internet/ other**	**Total**
Example	*25%*	*45%*	*30%*	*0%*	*100%*
Food					100%
Clothing					100%
Durables					100%
Services/other					100%

36. How is all of your income spent?

Monthly expenditure	**%**
Food, clothing durables & services (all of items in Q29)	
Income tax and NI	
Rent/mortgage	
Household bills & Council Tax	
Loan repayments and savings	
Total income	**100%**

37. Could you please ask the employees of the business who live within the 30 minute travel time area to complete the personal household expenditure questions?

(Try and be representative of position in the business/organisation)

26. Please provide further details about the business/activity expenditure

Please provide the total spend on each item (i.e. 'staff costs') and please state the approximate % spent in each area (see map).

Item	**Total amount spent £**	**% 30 min. travel time**	**% County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local business/es you use for each category**
Example	*£100*	*15%*	*50%*	*35%*	*0%*	*100%*	*Tools Co. Altrincham*
a) Staff (excluding sub-contractors)	**Total amount spent £**	**% 30 min. travel time**		**% UK**	**% Elsewhere**	**Total %**	**Please name the main local business/es you use for each category**
Staff costs (excl. NI & pension)						100	
NI & pension						100	
Sub-total a)						100	
b) Supplies	**Total amount spent £**	**% 30 min. travel time**	**% County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local business/es you use for each category**
						100	
						100	
						100	
						100	
						100	
						100	
Sub-total b)						100	

26. Business/activity expenditure (Cont.)

c) Type* of sub-contractors	Total amount spent £	% 30 min. travel time	% County	% UK	% Elsewhere	Total %	Please name the main local business/es you use for each category
						100	
						100	
						100	
						100	
Sub-total c)						100	
d) Other expenditure	**Total amount spent £**	**% 30 min. travel time**	**% County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local business/es you use for each category**
Fuel & utilities						100	
Plant & machinery repairs						100	
Insurance						100	
Additional taxes**						100	
Other***(please specify)						100	
Sub-total d)						100	
Total a+b+c+d	**£**					100	

*Specify type of sub-contractor in left hand column, i.e. electrician, plumber, landscaper, joiner etc.

**VAT, Corporation Tax and Business Rates. ***Might include loan repayments, rent/mortgages, fees and bonuses, drawings etc.

Local Economic Impacts of the Conversion and Re-use of Traditional Rural Working Buildings

Contractors/Advisors Survey

Questionnaire No:	
Name of respondent:	
Address of business:	
Telephone No:	
Date and time of interview:	

Please indicate whether the financial information that you are being asked to provide is taken from company records or is from your own recollection/knowledge

Records ☐ **Recall** ☐

Introduction

Thank you very much for agreeing to be interviewed. As I explained in my original email, the National Trust are co-funding my PhD research on the economic impacts of the conversion and re-use of traditional rural workingbuildings on the local economy. The results of my study will enable the Trust to understand the local economic impact of planned traditional rural working building conversion and re-use projects and thereby foster local economic growth in rural areas.

Everything you tell me will be treated confidentially and the results of the survey will be aggregated and conclusions reported as part of the case study. I would under no circumstances release any individual information about the conversion works to anyone else and I stress this because some of the questions cover the financial aspects of the works.

General information about the business

Please could you give me some general information about the business?

1. What is your status – are you the owner/manager, a partner or an employee of the contracting business? *(tick one box only)*

	Full-time	**Part-time**	
Owner/manager			
Partner			
Employee			
Other (specify)			

2. Is the business a full-time contracting business?

Yes ☐ **if yes, go to Q3**
No ☐

If no,

a. What proportion does contracting contribute to your total business income?

..............................%

b. What other businesses are you involved in?

....
....

3. Where do you live?

....

4. Including yourself, how many people are employed at the business address? (including working proprietors)

			Of which, how many:
Employee Type	**Persons**		**Live within the 30 minute travel time boundary**
Regular full-time (>30hrs/week)			
Regular part-time (<30hrs/week)			
Seasonal/casual			
Total			

a. This table might be easier/more relevant for seasonal/casual workers

Employee Type	Persons	Avg. no. of man weeks per year		Of which, how many: Live within a 30 minute travel time
Seasonal/casual				
Total				

5. What is the nature of your firm (for example *independent, branch of national chain*)?

   ....

6. Is this a family owned business?

   Yes ☐
   No ☐

7. How long has the business been located in this area?

   .... Years

8. Please state the average annual turnover (i.e. sales) of your business

   £ ....

9. Approximately what proportion of your average annual turnover is spent on goods and services (i.e. supplies), excluding labour and sub-contracted work?

   .... %

   Or if easier to give

   a. What is the approximate average annual spend on goods and services (i.e. supplies), excluding labour and sub-contracted work?

   £ ....

Purchases and sales

10. What proportion of all the goods and services (i.e. supplies, excluding labour and sub-contracted work) you purchase are from the following areas? **(see map)**

	30 min. travel time	**Elsewhere**	**Total**
Total value of purchases			**100%**

11. What proportion of your business relates to **rural vernacular buildings** generally (including the National Trust and other clients)?

    .... %

Impact of work on traditional rural buildings

12. What proportion of all the goods and services (i.e. supplies) you purchase is used for **traditional rural building projects**?

    ....%

    Don't know ☐

13. Do you carry out traditional rural building work on a regular basis (i.e. a few times a year)?

    Yes ☐
    No ☐

14. Please provide details of the **traditional rural building** projects that you have worked on over the past 10 years (or since the business started trading).

Project Description	Location

15. Turning to the main activities of your contracting business over the past 10 years (or since the business started trading) and distinguishing between **traditional rural building work** and **other activities**, could you please indicate the

approximate proportions of your total revenue and expenditure for rural vernacular building projects? **(enter proportions)**

Activity	**% of sales revenue (i.e. turnover)**	**% of all expenditure on labour (staff)**	**% of all expenditure on supplies (non-staff)**	**% of all expenditure on sub-contractors**
Rural vernacular buildings	%	%	%	%
Other	%	%	%	%
Total	**100%**	**100%**	**100%**	**100%**

16. Please provide further details about business expenditure on traditional rural building works, including staff, supplies and contracted work.

    (Use separate recording sheet for Q16)

17. What effect has work on traditional rural buildings had on the overall turnover (i.e. sales) of this business over the past 10 years?

    ....

    a. Why has this occurred?

18. Please indicate the proportion of all traditional rural building works by value that were carried out by a) your business b) sub-contractors, **in terms of total expenditure?**

	a) **Your business**	b) **Sub-contractors**	**Total**
Traditional rural building works			**100%**

19. Have any additional people been employed to help specifically with traditional rural building works?

Yes ☐
No ☐ **If no, go to Q21**

If yes:

20. Please provide further information about these additional employees (or additional hours for existing employees):

Occupation	**Employment fraction (i.e. 0.2, 0.5, 1 etc)**	**Left previous job in 30 minute drive time area?**	**Place of residence (30 minute area or elsewhere)**

21. If the business had not obtained income from working on **traditional rural buildings**, from what sources would income have been drawn over the past 10 years? Please estimate an approximate percentage for each income source.

Income source	**%**

Total	**100%**

22. Approximately what proportion of these main sources of income would have been derived from within the 30 minute travel time area and elsewhere?

30 minutes: ....% Elsewhere: ....%

23. If your business had not had any traditional rural building contracts over the past 10 years, what would have been the likely impact on the business? **(Please tick one answer for each question).**

Outcome: the business would have:	**1**	**2**	**3**	**4**	**5**	**N/A**
Continued at the same level of turnover						
Taken a drop in turnover by _______%						
Diversified into other areas of business such as: 1) 2) 3)						
Been forced to look for business further afield (i.e. beyond 30 minute area)						
Ceased trading						
Increased the number employed by _____ employees						
Decreased the number employed by _____ employees						
Provided more training for its employees						
Provided less training for its employees						
Taken on more apprentices (estimated no_____)						
Taken on less apprentices (estimated no____)						

1 = Definitely, 2 = Possibly, 3 = Unsure, 4 = Probably not, 5 = Definitely not

Training and skills

24. Have you undertaken any training to assist in your contracting work on **traditional rural buildings**?

Yes ☐
No ☐ **if no, go to Q25**

If yes

a) What training have you undertaken and over how many days?

Training	Days

Impact of traditional rural building works on the local economy

The following questions relate to your perceptions about the impact of traditional rural building works on the local economy. Please provide any information or views that you feel are relevant. This will help me to paint a clearer picture of local economic impacts arising from works on traditional rural buildings.

25. In your view, or to the best of your knowledge, has work on traditional rural building projects had an impact on the traditional building skills base of the area?

It may help to think about things like positive or negative impacts, apprenticeships, availability of training, skill deficits (and areas where they occur)

26. To what extent is there transferability of skills from traditional rural building projects to other projects/area of your building work (i.e. does skills development for rural vernacular building projects benefit work other than these projects?)

27. Are there any further impacts of traditional rural building works on the business that have not yet been mentioned?

It may help to think about impacts on your business profile, training & skills development through the National Trust, ease of winning other contracts because of NT associations

28. Are there any further comments or observations you would like to make about the impact of traditional rural building works on the local economy?

Your personal household expenditure

29. Please estimate your personal household expenditure according to where it takes place

Item	Within the 30 minute travel time	Elsewhere	Mail order/ internet/ other	Total
Example	*25%*	*75%*	*0%*	*100%*
Food				100%
Clothing				100%
Durables				100%
Services/other				100%

30. How is all of your income spent?

Monthly expenditure	%
Food, clothing durables & services (all of items in Q29)	
Income tax and NI	
Rent/mortgage	
Household bills & Council Tax	
Loan repayments and savings	
Total income	**100%**

31. Could you please all those employees of the business who live within the 30 minute travel time area to complete the personal household expenditure questions?

    Please be representative of staff rank

Thank you for your time

16. Please provide further details about how the business spends money on rural vernacular building projects

Please provide the total spend on each item (i.e. 'staff costs') in relation to rural vernacular building projects only. You may find it easiest to fill in the expenditure column first and then do the columns relating to where the expenditure went.

Item	**Expenditure on projects**	**% 30 min. travel time**	**%County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local (within 30 minute travel area) business/es you use for each category**
Example	*£15k*	*15%*	*0%*	*85%*	*0%*	*100%*	*Tools Co., Bristol*
a) Staff (excluding sub-contractors)	**Expenditure on projects**	**% 30 min. travel time**	**% County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local business/es you use for each item**
Staff costs (excl. NI & pension)						100	
NI & pension				100	0	100	
Sub-total a)						100	
b) Supplies	**Expenditure on projects**	**% 30 min. travel time**	**%County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local (within 30 minute travel area) business/es you use for each item**
Raw Materials 1 (please specify)						100	
Raw Materials 2 (please specify)						100	
Raw Materials 3 (please specify)						100	
Other inputs						100	
Other inputs						100	
Sub-total b)						100	

16. Business expenditure (Cont.)

c) Type* of sub-contractors	**Expenditure on projects**	**% 30 min. travel time**	**%County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local (within 30 minute travel area) business/es you use for each category**
						100	
						100	
						100	
						100	
Sub-total c)						100	
d) Other expenditure	**Expenditure on projects**	**% 30 min. travel time**	**%County**	**% UK**	**% Elsewhere**	**Total %**	**Please name the main local (within 30 minute travel area) business/es you use for each category**
Fuel & utilities						100	
Plant & machinery repairs						100	
Insurance						100	
Additional taxes**						100	
Other***(please specify)						100	
Sub-total d)						100	
Total a+b+c+d						100	

*Please specify type of sub-contractor in left hand column, i.e. electrician, plumber, landscaper, joiner etc.

**VAT, Corporation Tax and Business Rates

Local Economic Impacts of the Conversion and Re-use of Traditional Rural Working Buildings

Suppliers Questionnaire

Questionnaire No:	
Name of respondent:	
Address of business:	
Telephone no:	
Date and time of interview:	

Records ☐ **Recall** ☐

Introduction

Thank you very much for agreeing to be interviewed. As I explained in my original email, the National Trust is co-funding my PhD research on the economic impacts of the conversion and re-use of traditional rural working buildings on the local economy. The results of my study will enable the Trust to understand the local economic impact of planned traditional rural working building conversion and re-use projects and thereby foster local economic growth in rural areas.

Everything you tell me will be treated confidentially and the results of the survey will be aggregated and conclusions reported as part of the case study. I would under no circumstances release any individual information about the conversion works to anyone else and I stress this because some of the questions cover the financial aspects of the works.

Employment and turnover

Please could you give me some general information about this business?

1. What is your status – are you the owner/manager, a partner or an employee of the contracting business? *(tick one box only)*

	Full-time	**Part-time**	
Owner/manager			
Partner			
Employee			
Other (specify)			

2. Where do you live? ____________________________

3. What is the nature of your establishment (for example, *independent*)?

   ____

4. Including yourself, how many people are employed in the business?

			Of which, how many:
Employee Type	**Persons**		**Live within a 30 minute travel time**
Regular full-time (>30hrs/week)			
Regular part-time (<30hrs/week)			
Seasonal/casual			
Total			

5. Please state the average annual turnover (i.e. sales) of your business:

   £ ______________________________

6. Approximately what proportion of your average annual turnover is spent on goods and services (i.e. supplies), excluding labour?

   __________________ %

Purchases and sales

7. What proportion of all the goods and services (i.e. supplies) you purchase are from the following areas? (See map)

	Local area	Elsewhere	Total
Total value of purchases			**100%**

8. Please provide further details about all business expenditure
(Please use separate recording sheet for Q8)

9. Do you encounter any problems obtaining supplies?

Yes ☐
No ☐ **If no, go to Q10**

If yes

a) Please could you describe what the problems/issues are with respect to sourcing?

(**Probe for shortages, the need to source non-locally etc)**

10. What proportions of all sales (by value) are to customers in the following areas?

	30 min. travel time	Elsewhere	Total
Total value of sales			**100%**

11. What proportion of your turnover relates to supplies for the repair and maintenance of traditional rural buildings generally?

.... %

Don't know ☐

N/A (not a supplier of construction materials) ☐

Your personal household expenditure

12. Please estimate your personal household expenditure according to where it takes place?

Item	**Within a 30 minute travel time**	**Elsewhere**	**Mail order/ internet/ other**	**Total**
Example	*25%*	*75%*	*0%*	*100%*
Food				100%
Clothing				100%
Durables				100%
Services/other				100%

13. How is all of your income spent?

Monthly expenditure	**%**
Food, clothing durables & services (all of items in Q29)	
Income tax and NI	
Rent/mortgage	
Household bills & Council Tax	
Loan repayments and savings	
Total income	**100%**

14. Could you please ask all of the employees of the business who live within the 30 minute travel time area to complete the personal household expenditure question?

Please be representative of staff rank

Thank you for your time

8. Please provide further details about how the business spends its money

Please provide the approximate proportion of total expenditure spent on each item (i.e. 'staff costs'). For each row, the total % should be the total of '% 30 min., '% UK' and '% Elsewhere'.

Item	**% of business turnover**	**% 30 min. travel time**	**%County**	**% UK**	**% Elsewhere**	**Total %**
a) Staff (excluding sub-contractors)	**% of business turnover**	**% 30 min. travel time**		**% UK**	**% Elsewhere**	**Total %**
Staff costs (excl. NI & pension)						
NI, pension						
Sub-total a)						
b) Supplies	**% of business turnover**	**% 30 min. travel time**	**%County**	**% UK**	**% Elsewhere**	**Total %**
Raw materials 1 (please specify)						
Raw materials 2 (please specify)						
Raw materials 3 (please specify)						
Other expenditure						
Sub-total b)						

Supplier expenditure cont.

Item	**% of business turnover**	**% 30 min. travel time**	**%County**	**% UK**	**% Elsewhere**	**Total %**
a) Other expenditure	**% of business turnover**	**% 30 min. travel time**	**%County**	**% UK**	**% Elsewhere**	**Total %**
Fuel & utilities						
Plant & machinery repairs						
Insurance						
Additional taxes (VAT, Corporation Tax and business rates)						
Other (please specify)						
Sub-total c)						
Total a – c	**100%**					

APPENDICIES 13 AND 14

APPENDIX 13: CONVERSION WORKS LM3 MODEL

Direct effects	Grant injection	Own business Exp	Additional Exp	Total injection
Total injection	6,931,499	16,942,297	14,508,311	21,439,810
Less additionality effects			2,433,986	
Total Direct effects				21,439,810

Indirect effects I	% Total Injection	Expenditure	% Local 30	% County	Total injection (30)	Total injection (County)
Conversion expenditure	21,439,810					
Traditional construction supplies	0.01	214,398	0.05	0.08	10,720	17,152
Non-traditional construction supplies	0.05	1,071,991	0.15	0.15	160,799	160,799
Other supplies	0.07	1,500,787	0.00	0.00	0	0
Staff wages	0.07	1,500,787	0.10	0.10	150,079	150,079
Training	0.00	0	0.00	0.00	0	0
Contractors	0.67	14,364,673	0.59	0.70	8,475,157	10,055,271
Advisory services	0.03	643,194	0.20	0.27	128,639	173,662
Professional services	0.10	2,143,981	0.36	0.39	771,833	836,153
Total Indirect effects I	1.00	21,439,810	0.18	0.21	9,697,226	11,393,115

Indirect effects II		Expenditure 30	Expenditure County	% Local 30	% County	Total injection (30)	Total injection (County)	Total Indirect Effects II - staff wages (30)	Total Indirect Effects II - staff wages (County)
Contractors & Suppliers	%	9,547,148	11,243,037						
Staff wages	0.31	2,959,616	3,485,341	0.44	0.59	1,293,352	2,056,351		
NI & pension	0.09	859,243	1,011,873	0.00	0.00	0	0		
Raw materials	0.10	954,715	1,124,304	0.25	0.28	238,679	314,805		
Other supplies	0.05	477,357	562,152	0.09	0.18	42,962	101,187		
Sub contractors	0.10	954,715	1,124,304	0.18	0.27	171,849	303,562		
Fuel & utilities	0.06	572,829	674,582	0.00	0.00	0	0		
Plant & machinery repairs	0.03	286,414	337,291	0.00	0.00	0	0		
Insurance	0.04	381,886	449,721	0.00	0.00	0	0		
Additional taxes	0.04	381,886	449,721	0.00	0.00	0	0		
Other expenditure	0.18	1,718,487	2,023,747	0.04	0.18	68,739	364,274		
Total Indirect effects II	1.00	9,547,148	11,243,037	0.10	0.15	1,815,581	3,140,180	522,229	1,083,829

Indirect effects III							
Estimate of subsequent spending						57,832	191,264
Total Indirect effects III						11,570,639	14,724,559
Indirect multipliers						0.54	0.69
Indirect multipliers (additional)						0.48	0.87
Induced effects		**Expenditure 30**	**Expenditure County**	**% Local 30**	**% County**	**Total injection (30)**	**Total injection (County)**
Wages to all Staff and owners		1,443,431	2,206,430				
Disposable income (less tax, rent etc)		635,110	970,829				
Household expenditure	%*						
Food	0.16	101,618	155,333	0.81	0.93	82,310	144,459
Clothing	0.05	31,755	48,541	0.74	0.85	23,499	41,260
Durables	0.17	107,969	165,041	0.72	0.82	77,737	135,334
Services/other	0.62	393,768	601,914	0.82	0.93	322,890	559,780
Total	1	635,110	970,829	0.77	0.88	506,436	880,833
Subsequent rounds of spending						1,719,657	6,615,621
TOTAL INDUCED EFFECTS						**2,226,094**	**7,496,454**

Induced effect multipliers						0.10	0.35
Induced effect multipliers (additional)						0.09	0.31
						Total injection (30)	Total injection (County)
Total income effects						35,236,544	43,660,824
Income effect multiplier						1.64	2.04
Income effect multiplier (additional)						1.48	1.83
* From DEFRA Rural Digest 2012							

Employment effect model				
Direct FTE jobs	**Total population FTEs**	**Total non-additional FTEs**	**Direct FTE jobs (30)**	**Direct FTE jobs (County)**
	22.81	14.04	8.8	8.8
Indirect FTE jobs			Indirect FTE jobs* (30)	Indirect FTE jobs* (County)
			4.5	5.9
Induced FTE jobs			Induced FTE jobs** (30)	Induced FTE jobs** (County)
			1.3	1.5
Total FTE jobs resulting from conversion works			14.63	16.18
Total jobs arsing from conversion works			17	18
Employment multiplier			**1.67**	**1.84**
(*)Taking into account displacement effects in the local labour market. *Assumes 1 FTE job created for evey £100,000 expenditure on supplies (excluding staff and sub-contrators) by National Trust staff, tenants, contractors and suppliers.**Assumes an induced employment coefficient of 0.1 (I.e an additional induced job will arise with every 10 jobs supported either directly or indirectly at a local level. ***Assumes 1FTE per 1.14 actual job.				

APPENDIX 14: BUILDING RE-USE LM3 MODEL

Direct effects	Turnover	Attribution		Total injection
Total injection	5,338,617	2,069,540		2,069,540
Attribution				
Total Direct effects				**2,069,540**

Indirect effects I	% Total Injection	Expenditure	% Local 30	% County	Total injection (30)	Total injection (County)
Business expenditure	2,069,540					
Raw materials	0.21	434,603	0.27	0.27	117,343	117,343
Other inputs	0.15	310,431	0.28	0.36	86,921	111,755
Staff wages	0.24	496,690	0.77	0.77	382,451	382,451
NI & pension	0.05	103,477	0.00	0.00	0	0
Contractors	0.05	103,477	0.18	0.30	18,626	31,043
Fuel & utilities	0.15	310,431	0.00	0.00	0	0
Plant & machinery repairs	0.01	20,695	0.17	0.30	3,518	6,209
Insurance	0.02	41,391	0.00	0.00	0	0
Additional taxes	0.03	62,086	0.00	0.17	0	10,555
Other expenditure	0.09	186,259	0.23	0.27	42,839	50,290
Total Indirect effects I	**1.00**	**2,069,540**	**0.19**	**0.24**	**651,698**	**709,645**

Indirect effects II		Expenditure 30	Expenditure County	% Local 30	% County	Total injection (30)	Total injection (County)	Total Indirect Effects II - staff wages (30)	Total Indirect Effects II - staff wages (County)
Contractors & Suppliers	%	269,247	327,194						
Staff wages	0.27	72,697	88,342	0.84	0.98	61,065	86,576		
NI & Pension	0.06	16,155	19,632	0.00	0.00	0	0		
Raw materials	0.38	102,314	124,334	0.11	0.11	11,255	13,677		
Other supplies	0.10	26,925	32,719	0.22	0.22	5,923	7,198		
Sub contractors	0.00	0	0	0.00	0.00	0	0		
Fuel & utilities	0.05	13,462	16,360	0.10	0.10	1,346	1,636		
Plant & machinery repairs	0.01	2,692	3,272	0.14	0.14	377	458		
Insurance	0.03	8,077	9,816	0.00	0.00	0	0		
Additional taxes	0.03	8,077	9,816	0.00	0.11	0	1,080		
Other expenditure	0.07	18,847	22,904	0.48	0.48	9,047	10,994		
Total Indirect effects II	**1.00**	**269,247**	**327,194**	**0.19**	**0.21**	**89,013**	**121,618**	**27,948**	**35,043**

Indirect effects III							
Estimate of subsequent spending						6,513	9,541
Total Indirect effects III						747,224	840,804
Indirect multipliers						0.36	0.41
Induced effects		**Expenditure 30**	**Expenditure County**	**% Local 30**	**% County**	**Total injection (Local)**	**Total injection (County)**
Wages to all Staff and owners		443,516	469,027				
Disposable income (less tax, rent etc)		195,147	206,372				
Household expenditure	%*						
Food	0.16	31,224	33,019	0.90	0.92	28,101	30,378
Clothing	0.05	9,757	10,319	0.64	0.72	6,245	7,429
Durables	0.17	33,175	35,083	0.68	0.73	22,559	25,611
Services/other	0.62	120,991	127,950	0.67	0.71	81,064	90,845
Total	1	195,147	206,372	0.72	0.77	137,969	154,263
Subsequent rounds of spending						359,217	516,445
TOTAL INDUCED EFFECTS						**497,186**	**670,708**
Induced effect multipliers						**0.24**	**0.32**

						Total injection (30)	Total injection (County)
Total income effects						**3,313,950**	**3,581,052**
Income effect multiplier						**1.60**	**1.73**
* From DEFRA Rural Digest 2012							

Employment effect model				
Direct FTE jobs	Total reported FTE jobs	Total FTEs left other local job	Total additional FTE jobs (30)	Total additional FTE jobs (County)
	250.66	35.96	214.7	214.7
Indirect FTE jobs			Indirect FTE jobs* (30)	Indirect FTE jobs* (County)
			2.2	2.5
Induced FTE jobs			Induced FTE jobs** (30)	Induced FTE jobs** (County)
			21.7	21.7
Total FTE jobs resulting from building re-use			**238.61**	**238.92**

Total jobs arsing from building re-use			**272**	**272**
Employment multiplier			**1.11**	**1.11**
(*)Taking into account displacement effects in the local labour market. *Assumes 1 FTE job created for evey £100,000 expenditure on contractors and supplies (excluding staff and sub-contrators) by National Trust staff, tenants, contractors and suppliers. **Assumes an induced employment coefficient of 0.1 (I.e an additional induced job will arise with every 10 jobs supported either directly or indirectly at a local level. ***Assumes 1FTE per 1.14 actual job.				

APPENDIX 15

CONVERSION WORKS ORIGINAL INCOME AND EMPLOYMENT MULTIPLIERS

			Income multiplier		Employment multiplier	
Variable		**n**	**Local**	**County**	**Local**	**County**
Overall		22	1.48	1.83	1.67	1.84
Building type	Animal housing	7	2.34	2.63	1.90	2.15
	Crop storage and processing	5	1.67	2.26	1.61	1.61
	Other	10	1.34	1.60	2.06	2.46
Building size	< $464m^2$	14	1.69	2.04	1.82	1.88
	> $464m^2$	8	1.10	1.37	1.47	1.75
Designation	Listed	14	1.55	1.76	2.39	2.73
	Unlisted	8	1.36	1.68	1.29	1.29
SIC Class	Accommodation and food services	10	1.48	1.81	1.17	1.72
	Manufacturing	5	2.11	2.45	1.16	1.16
	Other	7	1.48	1.70	2.12	2.38
Tenure	In-hand	14	1.41	1.68	2.10	2.69
	Let	8	1.60	1.62	1.12	1.12

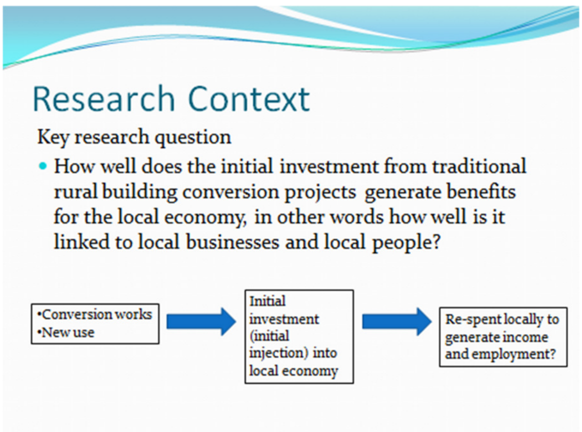
APPENDIX 16

BUILDING RE-USE ORIGINAL INCOME AND EMPLOYMENT MULTIPLIERS

			Income multiplier		Employment multiplier	
Variable		**n**	**Local**	**County**	**Local**	**County**
Overall		20	1.60	1.73	1.11	1.11
Building type	Animal housing	4	2.49	2.91	1.13	1.13
	Crop storage and processing	4	1.50	1.57	1.15	1.15
	Other	12	1.55	1.67	1.10	1.11
Length of occupancy	< 5 years	11	1.68	1.78	1.12	1.12
	> 5 years	19	1.58	1.76	1.11	1.11
Business size (turnover)	< £75,000	12	1.40	1.50	1.10	1.11
	> £75,000	8	2.20	2.45	1.14	1.14
Indigeneity	Indigenous	9	1.56	1.62	1.12	1.12
	Non-indigenous	8	1.67	1.78	1.11	1.11
SIC Class	Accommodation and food services	6	2.09	2.82	1.11	1.11
	Manufacturing	7	1.69	1.71	1.18	1.18
	Other	7	1.53	1.63	1.10	1.10
Tenure	In-hand	10	1.66	1.89	1.10	1.10
	Let	10	1.67	1.71	1.15	1.15

APPENDIX 17

SLIDES FROM FEEDBACK PRESENTATION TO THE NATIONAL TRUST



Methodology

6 stage process:

1. Literature review and conceptualisation
2. Methodological design
3. Primary date collection (case studies)
4. Data analysis, LM3 model development and computation of multipliers
5. Stakeholder consultation (National Trust)
6. Toolkit development

Methodology

1. Case Studies

- 30 buildings in England
- Model local economic impact of 1) conversion works, 2) building use, or both
- Defining the boundary of 'local' - drivetime
- Structured field interviews and telephone interviews

Methodology

Case study locations

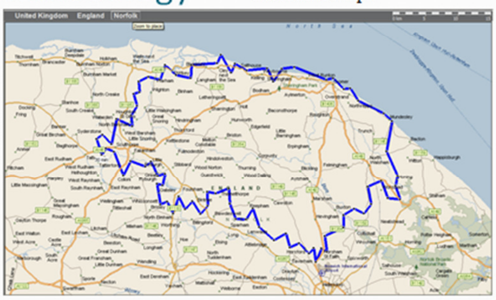
Methodology

1. Case Studies

- 30 buildings in England
- Model local economic impact of conversion works, building use or both
- **Defining the boundary of 'local' - drivetime**
- Structured field interviews and telephone interviews

Methodology

Drivetime Maps



Methodology

1. Case Studies – data collection

- 30 buildings in England
- Model local economic impact of conversion works, building use or both
- Defining the boundary of 'local' - drivetime
- **Structured field interviews and telephone interviews**

Data

Conversion works:

- 22 buildings, of which:

14 are Listed; 8 are unlisted; 14 are in-hand; 8 are let

Building use

- 25 buildings, of which:

15 are Listed; 10 are unlisted; 12 are in-hand; 13 are let

Data

Contractors:

- 11 firms willing to participate

Suppliers:

- 11 firms willing to participate

Householders:

- 75 participated in total, comprising:

32 National Trust staff; 20 tenants; 11 contractors; and 12 suppliers

Methodology

Data analysis

- Adapted LM3 model incorporating elements of a simple Keynesian Multiplier analysis
  - focuses on first 3 rounds of expenditure
  - subsequent rounds of local expenditure are estimated
  - LM3 score (the multiplier) falls between 1 and 3

LM3 Example

1. £1 enters local economy
2. 80% spent in local businesses = £0.80 left in local economy.
3. 60% of that £0.80 then spent in local businesses = £0.48 left in local economy

(£1 + £0.80 + £0.48) / £1 = <u>2.28</u>

Initial £1 injection generated a further £1.28 for the local economy

Methodology

Improving LM3

- Additionality
- Displacement
- Attribution
- Sensitivity analysis

LM3

Round	Activity	Effect
1	Grant income plus contribution from National Trust or tenant	Direct
2	Expenditure on contractors and materials	Indirect
3	Expenditure made by contractors and suppliers	Indirect
3	Household expenditure	Induced

Round	Activity	Effect
1	Attributable turnover from building use	Direct
2	Expenditure on goods, services and labour	Indirect
3	Expenditure by suppliers	Indirect
3	Household expenditure	Induced

LM3 – Conversion Works

Model category	Number of models	Models within category
Building type	3	Animal housing; crop storage & processing; other
Building size	2	< 464m²; > 464m²
Designation	2	Listed; Unlisted
SIC class	3	Accommodation and food services; manufacturing; other
Tenure	2	In-hand; let
Total	12	

LM3 – Building Use

Model category	Number of models	Models within category
Building type	3	Animal housing; crop storage & processing; other
Length of occupancy	2	< 5 years; > 5 years
Business size (by turnover)	2	< £75,000; > £75,000
Indigenous	2	Indigenous; non-indigenous
SIC class	3	Accommodation and food services; manufacturing; other
Tenure	2	In-hand; let
Total	14	

Findings example

Conversion Works building type

30 minute drivetime					
	n	Income multiplier	Employment multiplier	Total income generated (£m)	Total jobs created (FTEs)
Animal housing	7	1.75 - 2.34	1.74 - 1.90	12.4 - 18.4	6.9 - 8.3
Crop storage and processing	5	1.49 - 1.67	1.56 - 1.61	1.5 - 1.8	3.3 - 4.2
Other	10	1.22 - 1.34	1.75 - 2.06	16.3 - 19.9	4.2 - 5.4
County					
		Income multiplier	Employment multiplier	Total income generated (£m)	Total jobs created (FTEs)
Animal housing	7	1.82 - 2.63	1.91 - 2.15	12.8 - 20.6	7.5 - 9.5
Crop storage and processing	5	1.60 - 2.26	1.56 - 1.61	1.6 - 2.5	3.3 - 4.2
Other	10	1.37 - 1.60	2.03 - 2.46	18.3 - 23.8	4.8 - 6.5

Findings - Summary

Conversion Works – 30minute drivetime area

Variable	Highest Income Multipliers	Highest Employment Multipliers
Building type	Animal housing (1.75 – 2.34)	Other (1.75 – 2.06)
Building size	< 464m² (1.45 – 1.69)	< 464m² (1.60 – 1.82)
Designation	Listed (1.38 – 1.55)	Listed (1.98 – 2.39)
SIC class	Manufacturing (1.59 – 2.11)	Other (1.79 – 2.12)
Tenure	Let (1.05 – 1.60)	In-hand (1.79 – 2.10)

Findings - Summary

Building Use – 30minute drivetime area

Variable	Highest income multipliers	Highest employment multipliers
Building type	Animal housing (1.74 – 2.49)	Crop storage and processing (1.14 – 1.15)
Business size (turnover)	> £75k (1.64 – 2.20)	> £75k (1.13 – 1.14)
Indigeneity	Non-indigenous (1.47 – 1.67)	Indigenous (1.11 – 1.12)
Length of occupancy	< 5 years (1.39 – 1.68)	< 5 years (1.11 – 1.12)
SIC class	Accommodation and food services (1.49 – 2.09)	Manufacturing (1.17 – 1.18)
Tenure	Let (1.45 – 1.67)	Let (1.14 – 1.15)

The next step - Guidance

To design a set of principles/guidelines for use by the National Trust in planning adaptive re-use projects, and for use in strategic planning

My questions to you:

- What is you initial reaction to the study findings?
- How do you think you might use them?
- What form would you want the guidance to take?

APPENDIX 18

STRUCTURE FOR THE NATIONAL TRUST GUIDANCE DOCUMENT

Guidance Note on the Local Economic Impacts of the Adaptive Re-use of Traditional Rural Working Buildings

1.0 Introduction

1.1 Purpose of the guidance note

To explore the local economic impact of adaptive re-use projects, considering both the conversion works element and the subsequent new use of the building.

1.2 Local economic impact assessment and the National Trust

Local economic impact assessment as part of a suite of impact assessments, sitting alongside: historic building surveys; landscape character assessments; and environmental impact assessments.

Connection to Going Local – the knock-on effects of adaptive re-use on the local economy.

1.3 What is a multiplier?

Brief explanation of the multiplier concept – income and employment effects.

1.4 Local Multiplier 3 (LM3) modeling

Brief explanation of the LM3 model including strengths and weaknesses.

Limitations of LM3 analysis - explanation of the underlying assumptions for LM3 analysis.

Explanation of the importance of the definition of the local economy.

2.0 Key criteria for strong local economic linkages

Tables showing the key criteria, including multipliers, for conversion works and building use plus an explanation of each of the criteria

2.1 Using the multipliers

Explanation of the importance of the multipliers. Explanation of how they might be manipulated. Outline the implications of this for National Trust planning and decision-making (maybe through a check-list of local economic impact points to consider for adaptive re-use projects)

Limitations of the current dataset - explanation of the nature of the current dataset and guidance on its future use. State that the dataset is the result of exploratory work and the findings suggest a pattern of processes that might be occurring. The findings are only indicative and further work is required to allow estimations of local economic impact to be made for future planned adaptive re-use projects.

3.0 National Trust Applications

3.1 Rural regeneration

Explanation of the contribution that adaptive re-use projects can make to rural regeneration through income generation and job creation. Explanation of the importance of sourcing/procurement policies. Comparison could be made with new build assuming the data is available.

3.2 Retrofitting of traditional buildings

Explanation of how this approach to local economic impact assessment could be used to assess the local economic impact of the retrofitting of energy efficiency technology to traditional buildings – it could provide an economic case through demonstrating the potential for local income generation and local job creation.

3.3 Community Right to Buy

Explanation of how this approach to local economic impact assessment could support Community Right to Buy initiatives – it could provide an economic case for the proposal to show how the community could bring economic benefits for itself through the (adaptive) re-use of a building that it wishes to purchase.

4.0 Recommendations

- Integration with current National Trust Building Design Guides.
- Integration with current National Trust adaptive re-use guidance.
- Produce comparative work for new builds.
- Improvements to the dataset to enable estimation of local economic impacts for planned adaptive re-use projects.
- Application of LM3 analysis to traditional building retrofit projects.

GLOSSARY

A&FS	Accommodation and Food services SIC class.
Adaptive re-use	The National Trust's term for the conversion and re-use of traditional / historic buildings. It signifies that the building is being adapted to accommodate change, which is a reference to the National Trust's view of conservation as the careful management of change.
Additionality	The extent to which an activity takes place because of an intervention. An impact is additional if it would not have occurred in the absence of the intervention.
Attribution	An assessment of the extent to which an outcome was caused by the contribution of other factors.
Built heritage	Buildings, monuments and other man-made structures that are considered to be heritage.
CS&P buildings	Buildings that were originally constructed for crop storage and processing but are now functionally redundant for this purpose.
Deadweight	A measure of the outcome that would have occurred regardless of the intervention.
Direct effects	The immediate effects of an intervention, for example, the funds raised for a building conversion project are a direct effect of the project.

Displacement	The proportion of outputs from the intervention accounted for by reduced outputs elsewhere in the target locality.
Drivetime area	Area on a map bounded by an isochrone.
Heritage	All inherited resources, which people value for reasons beyond mere utility (English Heritage 2008).
Historic environment	All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity (English Heritage 2008).
Historic building	A building of architectural or historic interest or significance.
Historical significance	Important meaning in terms of history.
Indirect effects	Inter-industry transactions resulting from the direct effects of an intervention.
Induced effects	The effects on household income arising from the direct and indirect effects.
In-hand building	Used for the owner's own purposes as opposed to being let out for use by another.
Institutional values	The values that the public associate with (heritage) institutions / organisations.
Instrumental values	The wider benefits that can accrue through the use of something.

Intervention	An activity such as a project, programme or policy specifically targeting certain objectives within a defined area.
Intrinsic values	The value of something 'in itself' or 'for its own sake', generated through characteristics, meanings and associations.
Isochrone	The line on a map in drivetime analysis that connects points of equal travel time.
Leakage	The outputs that flow out of the intervention target area and benefit those outside of it.
Listed building	The statutory recognition of the historic significance of a building. Three categories of listing exist: Grade I; Grade II*; and Grade II. Grade I buildings are of exceptional and sometimes international interest. Grade II* are of more than special interest, placing them above Grade II buildings, which are of special interest and national importance.
Local economic impact	The income generation and job creation that occur within the geographical area defined as local.
Local Multiplier 3 (LM3)	Simplified model of the multiplier effect developed by the New Economics Foundation. Measures only the first three rounds of expenditure. Local refers to it being developed for microeconomic rather than macroeconomic use.
LM3 score	The result from an LM3 model. It will always be between 1 and 3. A score of 1 means that there was no expenditure within the defined local area and a score of 3 means that all

	expenditure occurred within the defined local area.
Multiplier effect	The increase in final income arising from any new injection of expenditure.
Outputs	The measurable results of projects, for example the number of jobs created.
Redundant building	A building that is no longer suitable for its original purpose. For example, a traditional farm building that is too small to house modern farm machinery.
Rounds of expenditure	The circulation effect of expenditure from an initial income. The first round is an income and the subsequent rounds are transactions involving a proportion of the initial income.
Rural economic development	Economic improvement in rural areas, for example the creation of new jobs or new sources of income.
SIC	Standard Industrial Classification. The UK classification system for businesses, according to their economic activity type.
Substitution	Where a business exchanges one activity for another to gain advantage from an intervention.
Traditional buildings	Buildings constructed before circa 1919, using moisture-permeable materials with solid walls and no moisture barriers, such as cavities or damp-proof courses.

Traditional rural working buildings	A traditional building in a rural area that was originally constructed for use in a rural enterprise.
Vernacular buildings	Buildings erected before late 19^{th} Century for use by people of lower social status. Vernacular buildings were constructed from local materials and were not designed by professional architects.