

Cowie, Paul, Mulvey, Gail ORCID: <https://orcid.org/0000-0003-0894-3065> ,
Peck, Frank ORCID: <https://orcid.org/0000-0003-1976-154X> and Shaw, Keith
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Brexit: Implications for the rural north of England

Dr Paul Cowie, Newcastle University

Dr Gail Mulvey, University of Cumbria

Professor Frank Peck, University of Cumbria

Professor Keith Shaw, Northumbria University

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Report prepared for Northumberland County Council and the Institute for Local Governance (ILG)



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The Institute for Local Governance (ILG) is a Research and Knowledge Exchange Partnership involving North-East local authorities, universities, police and fire and rescue services. Hosted by Durham University Business School, it serves as an intermediary ‘bridging organisation’ whose role is to source and secure the delivery of research requirements of its public sector partners through the facilitation of processes of co-production between practitioners and North East university researchers.

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Executive Summary

1. This study has been commissioned by Northumberland County Council to consider the implications of Brexit on the rural north of England. Brexit is a 'once in a generation' event which will have a significant and long-lasting impact on all parts of the UK. The area covered by this report is primarily the rural parts of the county of Northumberland, but inevitably, what happens in the neighbouring areas will have a significant impact on rural Northumberland so a wider focus on the rural north is employed where necessary. In addition, rural areas are interconnected with urban regions across the North, hence the impact of BREXIT on the rural north must include consideration of the potential impacts of BREXIT on regions of the North, including the metropolitan areas.

2. The policy review captures how the rural north of England has been lagging behind both the regional and national economy for some time. The data shows that Northumberland has lagged behind the urban areas of the region in both GVA and levels of employment for a number of years. Rural economies also face problems relating to low wage levels, affordable housing, connectivity and dependence on EU funding. However, problems also arise from mistaken or outdated assumptions about rurality, and the application of policies designed primarily for urban areas.

3. The Policy review has also revealed two important issues:

- that while land-based activities are vital, particularly for more remote communities, the economy of the rural areas of the north is highly diverse and the BREXIT effects cannot simply be reduced to a narrow range of sectors that are deemed to be "rural".
- rural areas are interconnected with urban regions across the North, hence the impact of BREXIT on the rural north must include consideration of the potential impacts of BREXIT on regions of the North, including the metropolitan areas.

4. The review also highlights how Britain's rural areas represent a forgotten opportunity. Their economic contribution – 16.6 per cent of GVA – derives from diverse activities; 'traditional' rural sectors such as agriculture and tourism operate alongside a growing presence of agri-tech, energy generation, and manufacturing. The latter accounts for the same proportion of the rural and the urban economy. Different elements of the rural economy are closely intertwined, relationships to urban neighbours are important, and rural places themselves are highly diverse.

5. The sector reviews highlight how specific drivers will have impacts for certain sectors. For example,

- For **agriculture** the main concern is around the future of policy following the exit from the Common Agricultural Policy. There are also pressures resulting from access to EU labour and commodity markets with uncertainty about the nature of future relationships compounding the pressures.
- Similar concerns were raised in relation to **manufacturing** with access to export markets and EU labour markets being the top drivers for change. There were potential positives highlighted. The possibility of gaining better access to fast growing markets in Africa and South East Asia could benefit the region's manufacturing companies. Linked to the labour market issues, a big driver for change is the region's ability to deliver the relevant skills and training for the region's businesses. This has been a problem for a number of years and has formed the basis of a number of the region's previous economic strategies.
- In contrast to the manufacturing and agricultural sectors, the **Forestry** sector sees a number of opportunities in Brexit. For example, as the sector grows there is a problem of sourcing raw materials locally. With any decline in agriculture and land values, opportunities arise to convert land to forestry.
- The **tourism** sector presented more of a mixed picture with changes to travel and visa processes possibly adding to demand for staycations. This is balanced by concerns about finding and retaining a workforce willing to work in a rural area. There was also a strong statement made by a number of experts on the need for a more coordinated approach to destination marketing for the region.
- The **Digital and creative sector** is often hidden within the wider rural economy but plays a significant and growing role. For this sector, connectivity is the biggest driver for change. Both physical, through issues such as broadband, but also intangible connectivity through distance from knowledge and innovation networks.

5. The round table events also highlighted the need for the region to play to its strengths. This is in terms of its economic strengths in manufacturing, particularly sectors such as off-shore and automotive and in the new fast-growing sectors such as digital and creative industry. It also relates to the natural assets of the region. The relationship between the rural and urban areas was also highlighted as being critical to the region's future prosperity.

6. The most important driver of change identified by the expert panel for this report was *the shape of regional and rural policy support following Brexit*. The impact of a new agricultural policy regime in

tandem with a new regional policy structure will have a significant impact on the rural north of England. This is partially mitigated by the potential of new devolved structures that are about to come into effect. The North of Tyne Combined Authority and the Borderlands Growth Deal do give the region the opportunity to control its fate to a certain extent and to implement policies which address the specific weaknesses of the economy. However, knowledge of, and commitment to, both endeavours remains patchy. Other drivers which are important in determining the future of the rural north of England are digital infrastructure and the impact of the 4th industrial revolution. There is a danger that events may further marginalise the region, both physically and in policy terms leading to the rural north of England missing out on the opportunities that these developments offer.

7. The two scenarios presented in this report deliberately reflect the best and worst outcomes of Brexit. Even the best outcome for the rural north of England presents significant challenges for policy makers due to the pre-existing deficiencies in the region's economy. In the worst-case scenario, policy makers will need to make significant decisions to mitigate the effects of Brexit. In both scenarios, tackling the pre-existing weaknesses of the northern rural economy will also provide a policy framework to tackle Brexit. These weaknesses, as identified by the expert panel include, a better regional jobs and skills market, better connectivity - both in transportation and ICT - and a more joined-up approach to regional decision making.

8. The final workshop held by the project team has created a third scenario and roadmap for the future. It highlights both the risks and the opportunities presented by Brexit and what the region can do to face the challenge head on. There are fundamental structural issues that need to be addressed: connectivity; skills and training; supply chain infrastructure and coordinated governance for example. Some of these issues can be tackled by the region and its stakeholders without help. Other issues require support and assistance from beyond the region. The clear message was that the region needs to speak with one voice and be clear about what it is asking for.

1. Introduction

This study has been commissioned by Northumberland County Council to consider the implications of Brexit on the rural north of England. Brexit is a 'once in a generation' event which will have a significant and long-lasting impact on all parts of the UK. The area covered by this report is primarily the rural parts of the county of Northumberland, but inevitably, what happens in the neighbouring areas will have a significant impact on rural Northumberland so a wider focus on the rural north is employed where necessary. The report's structure is as follows.

Following the *Introduction*, *Chapter One* sets out the wider context of the rural north, its economic and social profile and wider challenges and opportunities and locates the Northumberland economy within this. *Chapter 2* looks specifically at policy literature on the potential implications of Brexit across a series of pan-regional, regional and local scales, while *Chapter 3* provides a more in-depth analysis of the key sectors relevant to Northumberland's rural strategy and the potential opportunities and constraints created by Brexit.

The policy review considered both academic and policy documents. It looked at policy responses to Brexit on both a national and regional level coupled with a comprehensive sectoral analysis taking account of the most important sectors for the rural north east of England. This was then triangulated using the material gleaned from the primary data described in the next three chapters.

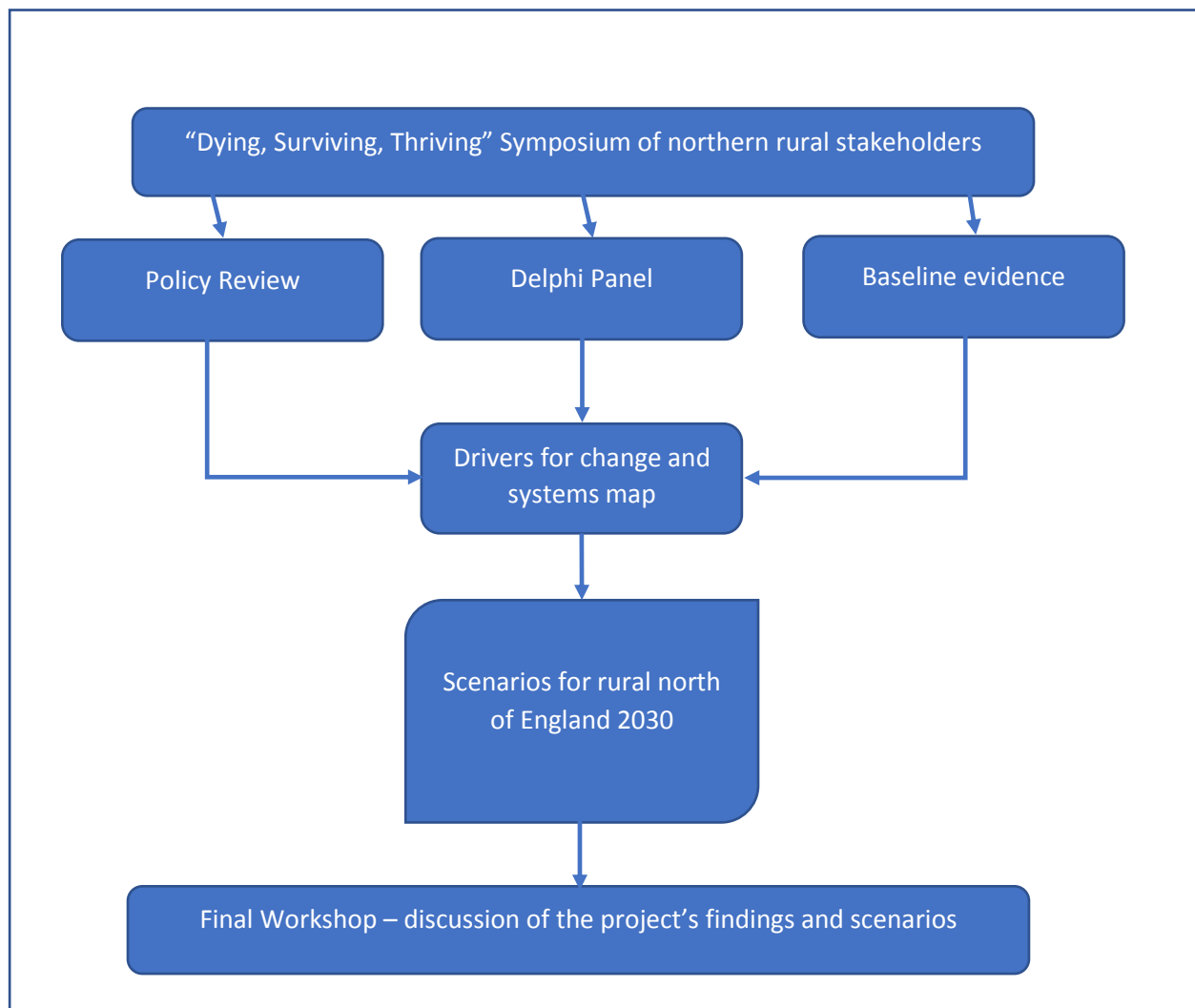
Building on the material covered in the first 3 sections, *Chapter 4* explains how a foresight methodology was used to engage a panel of experts from across the region in imagining what rural Northumberland will be like in 2030. This panel of experts was set the seemingly simple question of: "what will Brexit mean for the rural north of England?" Within this question, the complexity of Brexit soon reveals itself as the impact will be felt across all sectors of the economy and within every community in the region. To structure this seemingly impossible task, the Delphi Method was adopted. The Delphi Method provides a systematic way of thinking about the future. *Chapter 5* captures how it first identifies the key drivers for change and then starts to build an understanding of the systems and processes that are driving change in the region.

The final stage of the foresight process – *contained in Chapter 6* - is to build a set of scenarios imagining what the rural north of England will be like in 2030. These are not intended to be predictions but are provocations to stimulate a debate about the kind of future to aim for and conversely the kind of future to avoid.

2. The Project Methodology

This study has used a foresight methodology to develop an understanding of the impact that Brexit may have on the rural north of England. The foresight method does not aim to predict the future. It sets out to imagine a number of scenarios that reflect possible outcomes for the future. These future scenarios are developed with the help of an expert panel and using a range of primary and secondary sources. Figure 1 shows the structure of the foresight method used in this study:

Figure 1: Foresight Methodology



Phase 1: Baseline evidence; Policy Review and Delphi Panel.

The foresight method starts with three parallel work packages: a policy review; a Delphi Panel Survey and the collation of baseline evidence.

Work Package 1: The Policy Review

An extensive review of a range of policy and academic documents was undertaken. The current socio-economic and policy contexts in which Northumberland and the rural North finds itself have been outlined as have the possible implications of Brexit. This stage also included a detailed review of the present state of the region's main sectors – agriculture, digital, environmental & renewable energy, fishing, forestry, manufacturing and tourism - and the potential short term, medium and long-term impacts. Challenges and opportunities for these sectors are also presented.

Work Package 2: The Delphi Panel.

The Delphi Method was developed in the 1950s by the RAND Corporation to avoid the problems associated with seeking consensus within a group of experts, such as any pressure to conform to the majority views of the group or dominance by a strong voice. The main benefit of the Delphi Technique is its ability to obtain a consensus of opinion among the experts involved in a project. Since its original development, it has been adapted to suit a wide range of research problems.

There are a number of characteristics of the Delphi Method that are common to all projects:

- There is anonymity on the part of the participants;
- The participants are chosen because of their specialist knowledge of the subject matter; and
- There are at least two rounds of communication between the researcher and the participants.

In the case of this study, two rounds of the survey were conducted in February and March 2018. In the first round of the survey, an expert panel of stakeholders was asked to highlight what they thought were the key drivers for change in the rural north of England after Brexit. In the second round of the survey, the expert panel was asked to rank the drivers in order of importance and to connect the key drivers to each other. From these two survey rounds, it was possible to build up a detailed process map of which elements of the rural north of England will be most important in driving change.

Phase 2: Developing the future scenarios for a post-Brexit rural north of England

The final Phase of the project was to create a series of scenarios of the rural north of England in 2030. To do this, the information collected through the Delphi Survey and policy review were combined with a

STEEP matrix. STEEP stands for: Social; Technological, Economic; Environmental; Political and Values. This allows the key drivers identified in the Delphi Survey to be explored across all dimensions of society. The result is a detailed narrative setting out what the future rural society will be like along with a detailed analysis of how each driver will influence what is happening at that time. For this analysis, two scenarios were created to represent the best possible outcome and worst possible outcome from the Brexit process and consequences flowing from those outcomes. These scenarios are not intended to be predictions about the future but are indications of potential futures that can stimulate debate about what kind of future is desirable and what future should be avoided.

3. The Rural Economy

The Rural context

The purpose of the next two chapters is to review the policy literature that addresses issues for rural areas in the north of England with particular emphasis (in chapter 4) on the challenges that these communities may face arising from BREXIT. These challenges are applied in particular to rural Northumberland but illustration is also presented where appropriate from neighbouring territories in the wider rural North of England, in particular from Cumbria, and also from the South of Scotland. Several key documents contain overviews of the rural North in general and these are reviewed in these sections. A key point made throughout these documents, however, is that rural areas are particularly vulnerable to policy changes partly due to sectoral dependencies that typify many rural economies, but also due to recent trends in socio-economic characteristics that are associated with areas that display relatively low population density and poorer levels of accessibility.

It is important to - initially - highlight that rural areas of the north of England share many characteristics in common with rural England in general. The Rural Coalition (2017) notes that rural areas of England account for almost 9.3m people living in small towns, villages, hamlets and farms across the Country (settlements with a population of less than 10,000, plus some slightly larger hub towns serving rural hinterlands). This rural population comprises 17% of the total England population (ONS 2014 Mid-Year Population Estimates).

The Rural Coalition (2017) also estimates that in 2015, economic output from predominantly rural areas was worth an estimated £237 billion or slightly under a 17% share of England's GVA. It is important to recognise that a wide range of economic sectors are present in rural areas. The difference between economic structures in urban and rural areas is, perhaps, sometimes exaggerated. There is, for instance, a considerable amount of manufacturing activity dispersed across smaller settlements in rural areas.

Though self-evident, it is important to note that while businesses in rural areas may be distinctive in some regards, most have characteristics that are similar to those in urban areas and face many of the same opportunities and challenges (House of Commons Library, 2017a, b)). However, it is undoubtedly the case that rural economies have greater dependency on agriculture, forestry and fishing: In 2015, these accounted for 16% of rural businesses in England and 28% in Scotland. On the other hand, two sectors which are notably under-represented in rural areas are financial services and information and communications services.

The significance of agriculture for rural economies extends well beyond its direct impact in terms of primary food production. While *Agriculture* accounts for 12 per cent of jobs in the UK's food system, in covering 71 per cent of the UK's land, it is the main influence on rural landscapes, soils, wildlife and fresh water. Farmers have also diversified into leisure and accommodation, environmental management and renewable energy production. It is estimated that diversified activity accounts for over a fifth of farm business income, and more than a third on small farms.

UK agriculture also underpins the *food manufacturing* sector by providing over 60 percent of the produce and raw materials involved. This is a vitally important sector, sustaining 3.8 million jobs and adding over £21 billion (GVA) to the UK economy every year. Food manufacturing is nationally important and benefits communities across the country, although it has particular importance in many rural areas (RSA, 2017).

Tourism is also important to rural economies providing markets for existing and new businesses as well as opportunities for farm diversification. Overseas visitors whose visits included a trip to the countryside or villages spent an estimated £4.2 billion in the UK in 2011. A higher proportion of employment in this sector is in small businesses in rural areas than in urban areas (Tourism Alliance, 2017).

There are some encouraging signs in terms of business formation in recent years. The *number of business units* located in rural areas grew by more than 10% in the four years up to 2015/16 (DEFRA, 2018c). The great majority of rural business units are classified as being either small or micro businesses. When compared with urban areas, there is a particularly high proportion of single person businesses (sole traders and partnerships) and a particularly low proportion of larger businesses in rural areas. *Home working* is common in rural areas and particularly so in the smallest settlements. In 2013, there were 994,000 home workers in rural areas, who comprised 22% of all those working in rural areas. This figure compares with 12% for those working in urban areas. Whilst home working has increased across all types of area, the fastest rate of growth has been that recorded in rural areas.

In terms of connectivity, a recent survey of business support organisations (BCC, 2017) found that access to broadband and mobile networks was their top rural concern. Other concerns identified were rural businesses' access to finance, skilled labour, start-up/growth advice, marketing advice and transport networks – not rural-specific issues, but ones which may well have a particular rural dimension. According to Ofcom (Connected Nations 2016 report), 95% of all premises (nationally) now have access to a broadband connection of 10 Mbps – a speed defined as fast, but not as superfast. However, the remaining 5% are concentrated in rural areas. Ofcom concludes that around a quarter of all rural premises do not yet have access to a 10 Mbps broadband connection. A recent (2017) business survey by the British

Chambers of Commerce similarly found that 30% of responding businesses from rural areas did not have a reliable broadband connection. Gaps in mobile phone signal are, again, concentrated in rural areas (Rural Coalition, 2017).

The Policy Challenges

The challenges to the economies of rural areas nationally has been summarised as follows (after CRE, 2017; RSA, 2017):

- Policymaking all too often hits rural communities inappropriately or leaves them behind. Resourcing may seem unfair in its allocation between urban and rural, and services can fall short once the focus moves outside towns and cities. Assumptions are made about rural economies that focus too narrowly on agriculture and tourism and the ageing profile of the population is seen as a burden.
- Lack of affordable housing and high prices in relation to rural wages are persistent causes of concern among rural residents. Average house prices in rural areas are 26% higher than in urban areas, while local earnings are 27% lower, and there is much less housing association and council housing – 12% of rural housing stock is social housing compared with 19% in urban areas. Younger people are often priced out of the market completely and hence may be forced to move away or to commute long distances, disrupting family networks and preventing the local economy from realising its potential. Lack of access to appropriate housing reduces the available workforce and stifles the contribution that rural areas could be making to national growth.
- There are relatively low wage levels in rural areas. The average for those who work in predominantly rural areas is £19,900, which is £4,600 less than the average for those who work in urban areas. The average for those who live in rural areas is £21,600, which is £1,500 less than the average for those who live in urban areas. This indicates that rural residents who commute to urban jobs are able to increase their earnings above those who work locally in rural areas.
- A marked feature of the population of rural England is its age profile. Older people are over-represented, with the 65 plus age group comprising 23.5% of the rural population compared with 16.3% of the urban population. Conversely, young adult age groups are under-represented in rural areas. Whilst the nation's population profile is set to age – with older people forming a growing share of the total population – that trend is projected to happen fastest in rural areas. The fastest (percentage) growth of all will be that for the 85 plus age group in rural areas (Rural Coalition, 2017).

- The quality of the rural environment is under huge pressure. The past 40 years have seen farmland bird numbers halve and butterflies fall by 40 per cent. To conserve important habitats, more than a quarter of UK land is protected by national and international legislation. Nevertheless, 1,057 species in the UK are estimated to be threatened with extinction (RSA, 2017). The case for protecting and restoring ecosystems acknowledges the benefits that these provide to us all.
- On climate change, reductions in UK agricultural emissions lag behind those of other industries while demand for food and energy has led to ‘offshoring’ of impacts through high levels of importing. It is estimated that for every 100 hectares of UK farmland, another 70 hectares globally is devoted to meeting UK consumption.

At national level, therefore, in one sense many of the issues facing rural economies are the same as those which affect the whole of the UK but the challenges of “rurality” mean that their impacts are different, more acute, or harder to address. A continual tension also exists in national rural policy-making between promoting growth and maintaining the character and quality of the countryside and ‘cherished landscapes’ (CRE, 2014, p. 4). It is pertinent to note, however, that even prior to the BREXIT vote, *the 2015 ‘10-point plan’ for boosting rural productivity* (DEFRA, 2015) addressed connectivity, skills, enterprise, housing and governance, all of which would appear in a list of growth enablers for *any* type of area. The rurality factor, however, tends to affect the priority order and urgency of policy interventions. Policy statements at a national level aimed specifically at rural economies have therefore tended to emphasise connectivity (broadband services, mobile communication, transport connections), issues related to population and skills (rural apprenticeships, childcare, housing supply) and business environment (planning legislation). The perceived difference between rural and urban areas is also affecting the role that rural areas can play as future technologies start to have a meaningful impact on the economy and society. Many new technologies, Autonomous Vehicles, the Internet of Things and big data, have often been developed to address the problems faced by cities. There is a risk that rural areas, which can also benefit significantly from these new technologies, will miss out.

However, it is commonly argued that Britain’s rural areas represent forgotten opportunities (CRE). Their economic contribution – 16.6 per cent of GVA – derives from diverse activities; ‘traditional’ rural sectors such as agriculture and tourism operate alongside a growing presence of agri-tech, energy generation, and manufacturing. The latter accounts for the same proportion of the rural and the urban economy. However, challenges arise from remoteness, lack of investment, mistaken or outdated assumptions about rurality, and the application of policies designed primarily for urban areas. Different elements of the rural

economy are closely intertwined, relationships to urban neighbours are important, and rural places themselves are highly diverse. Policy for the rural economy in the 21st century needs to recognise this integration of issues and the importance of place.

The “Rural North”: Rural Northumberland as an Exemplar

There is no single agreed definition of the “rural North of England”. In the broadest sense, it can be taken to mean areas of the North (North-West, North-East and Yorkshire and Humberside) that lie outside the City-Regions as currently defined. This definition embraces many different types of “rurality” including urban fringe areas and commuter belts alongside disadvantaged uplands and remoter rural areas. The boundary of the area to the north is also somewhat arbitrary (the Anglo-Scottish Border) as rural areas of Northumberland and Cumbria share many characteristics in common with the south of Scotland.

The boundaries of the “Rural North” have been defined spatially by Davoudi *et al* (2017). Data from the 2011 Census shows that more than 2.1 million people in the North lived in communities officially classified as ‘rural’, accounting for 14% of the total population. The rural North, however, is diverse in character and contains settlements better described as freestanding “small towns” with populations up to 30,000, many of which act as market towns and service centres for surrounding smaller settlements. The rural North contains some of England’s most remote and sparsely populated areas (North Pennines, NW Northumberland) as well as small towns with locally significant industrial employers as well as former mining villages across County Durham. The rural North, however, also encompasses small settlements located closer to the major northern conurbations where local economies are strongly influenced by patterns of commuting.

While the precise boundaries of the “rural North” are rather arbitrary, examples of territories associated with the greatest disadvantages associated with “rurality” are much more readily agreed. “Rurality” on a national scale can be regarded as a source of disadvantage for businesses and policymakers, but many rural areas in the North of England present additional challenges for local economies arising, in part, from the nature of the physical environment, relative geographical isolation and distance from political decision-making. Of course, some of these circumstances can be overcome through proactive engagement. There are also characteristics of rural areas of the North that can be used to offset evident disadvantage, in particular, the quality of life that can be experienced as a rural resident. The manner in which these advantages and disadvantages interplay can be illustrated using rural areas of Northumberland as an exemplar.

Northumberland County sits to the north of the Tyne & Wear conurbation and stretches up to the border with Scotland. As has been identified in the Northumberland Economic Strategy (NCC, 2015b), the area can be split into three distinct areas: the south east, central and remoter rural areas to the north and the west of the county. As has been shown for rural areas nationally, therefore, rural Northumberland displays varied types of rurality conditioned by proximity to the North's major cities and patterns of commuting, trading and leisure. Each of these areas within Northumberland has its own particular characteristics and challenges. The economy of the south east and central areas of the county are closely connected to the Tyne & Wear Conurbation to the south. The north and west of the county is more self-contained with some links to the cross-border economy.

As can be seen from Table 1, Northumberland has a slightly higher economically active population than the rest of the north east but is below the national average. The breakdown of employment by sector shows that Northumberland has a higher proportion of jobs in the Health and Social Work, Tourism, Manufacturing and Agriculture Sectors than either the north east or the UK. Some of these sectors are commonly associated with relatively low wage activities. However, the 2015 Northumberland Economic Strategy (NCC, 2015b) also highlighted that the county is a significant location for higher skilled workers to live but that they often commute to jobs in the urban core. This is mainly to the Tyne & Wear area but there is also a significant minority of people who undertake a longer distance commute to for example, London or Greater Manchester urban centres.

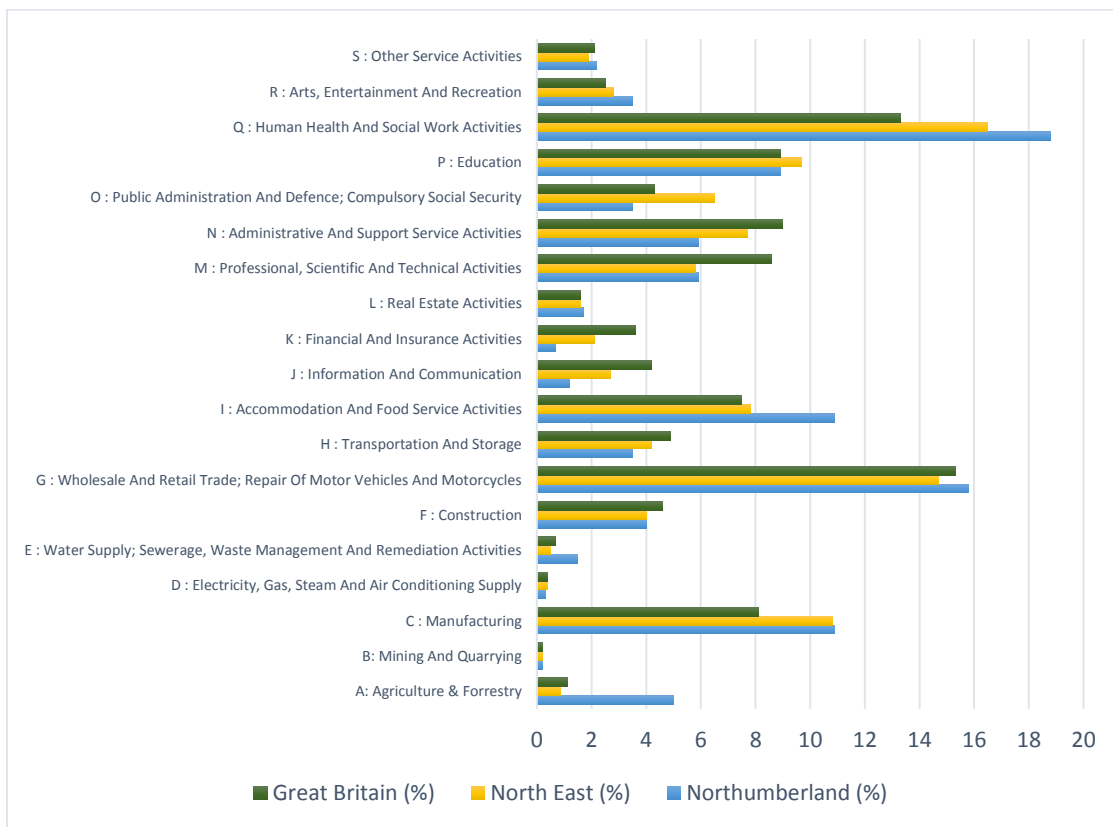
Table 1: Employment and unemployment (Jan 2017-Dec 2017)

	Northumberland (Numbers)	Northumberland (%)	North East (%)	Great Britain (%)
All People				
Economically Active	148,700	76.6	75.4	78.4
In Employment	142,000	73.0	70.6	74.9
Employees	116,500	61.0	62.7	64.0
Self Employed	25,100	11.8	7.8	10.6
Unemployed (Model-Based)	7,500	5.0	6.2	4.4

Source: ONS

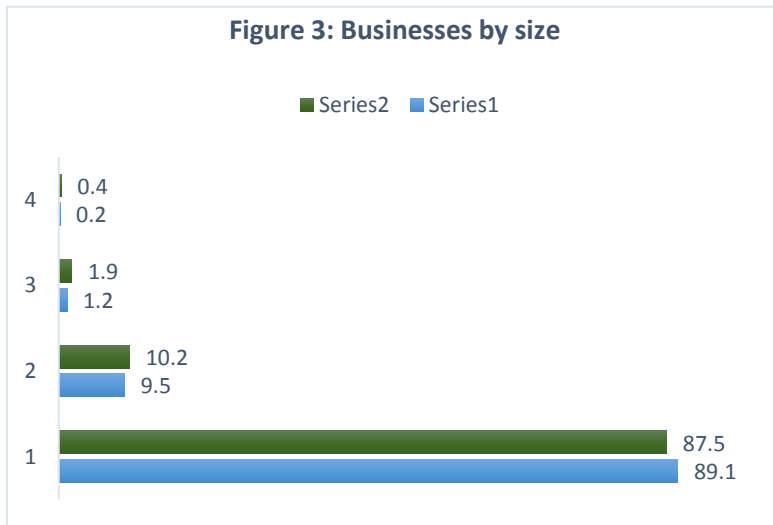
Figure 2 shows the sectoral composition of the labour force in the County. Northumberland has significant levels of employment in healthcare, wholesale and retail distribution, accommodation & food, manufacturing as well as agriculture and forestry. In contrast, Northumberland is below the regional and national figures for Information and Communication jobs and on a par with the region for Professional, Scientific and technical jobs. These structural characteristics are long-standing and typify many local economies in the rural north.

Figure 2: Employment by Sector



Source NOMIS, 2018

Another key characteristic of the economy of Northumberland is that it is dominated by micro-businesses. This has a significant impact on growth and productivity. There is also evidence that in the remoter north and east of the county, many of these businesses are home-based businesses. These characteristics of

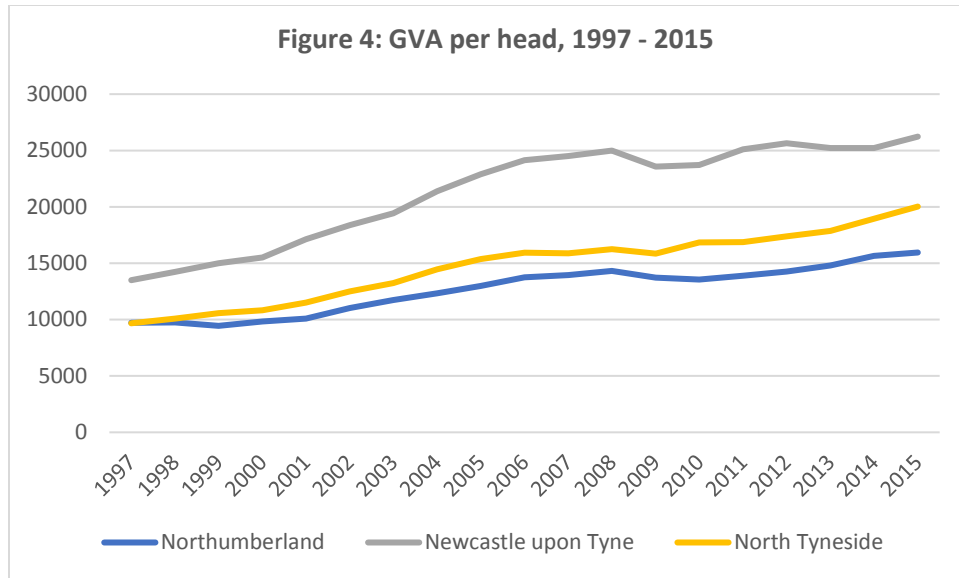


Source NOMIS 2018

the county's businesses present a challenge for those seeking to provide support and assistance to businesses in Northumberland. These businesses do not always have the inclination nor ability to engage with knowledge networks. They often lack the capacity to engage in business development programmes that target growth and productivity.

However, there is evidence from recent surveys that many of these rural businesses are interested in innovation to develop their own resilience. This often relates to better business practices such as investment in new ICT technology or developing better business management techniques (Philipson et al., 2018).

This is reflected in the continuing underperformance of the county in terms of Gross Value Added (GVA). Figure 4 shows the GVA per head of population for the three local authorities making up the new North of Tyne Combined Authority.



Source ONS 2018

The data on skill levels for Northumberland paints a mixed picture. For higher levels of qualification, Northumberland is above the regional but below the national average. For lower level qualifications, the area is above both the regional and national average. Lastly, Northumberland has the lowest percentage of people with no qualifications. This suggests that there are workers with skills in the county but evidence suggests that many of the higher skilled jobs are located in the urban core with workers commuting to them.

Table 2: Qualifications (Jan 2017-Dec 2017)

	Northumberland (Level)	Northumberland (%)	North East (%)	Great Britain (%)
Individual Levels				
NVQ4 And Above	65,200	35.0	31.7	38.6
NVQ3 And Above	100,200	53.8	52.1	57.2
NVQ2 And Above	143,100	76.9	72.6	74.7
NVQ1 And Above	166,300	89.3	84.1	85.4
Other Qualifications	7,200	3.8	6.3	6.9
No Qualifications	12,700	6.8	9.6	7.7

Source NOMIS 2018

At the moment, there are two strategic plans which are having an impact on the economy of Northumberland. The first has been referred to already, the Northumberland Strategic Plan produced in 2015.

The second is the North East Strategic Economic Plan (SEP) produced in 2014 and reviewed in 2017. These plans are hierarchical in nature with the targets for jobs growth being cascaded down from the North East SEP to the Northumberland SEP. The visions for the two plans are also closely aligned:

'A prosperous Northumberland founded on quality local jobs and connected communities' - Northumberland SEP

'More and better jobs' – NE SEP

The NE SEP identifies four key sectors with the potential to deliver the needed high skilled jobs:

- Digital
- Advanced manufacturing
- Health and life sciences
- Subsea, offshore and energy technologies

All four sectors, though not traditional rural industries have a significant or have the potential to have a significant presence in rural areas. For example, a report for the North East Rural Growth Network found a cluster of sub-sea and off-shore service companies in a rural enterprise hub (Cowie et al., 2013). There is then a question of how best Northumberland can attract, develop and retain industries such as these alongside the existing businesses that are well established in the County.

Finally, it is important to highlight that Northumberland contains a varied and diverse set of landscapes. In the south and east, it contains areas of former industrial land much of which has now been reclaimed as both productive agricultural land but also cultural and environmental land. In Northumberland, Northumberlandia and Durdale Bay are good examples of areas which were previously open-cast mining which have now been remediated to sites which are not only rich in biodiversity but also add to the cultural heritage of the area. Further north, the eastern coastal area holds some of the region's best arable land. Moving westwards, the land starts to rise until reaching the North Pennines and Cheviot hills at the Border with Scotland. This part of the region has some of the most remote communities and most tranquil areas in the whole of England. Its unspoilt nature has been recognised with the first Dark Sky Park in the UK. A large part of this area is taken up by Kielder Forest and the Ministry of Defence Otterburn Training Area. The area contains just about every terrestrial and marine special designation it is possible to have. It is home to many important historical places and buildings from the earliest Bronze Age hill

forts, Hadrian's Wall and Alnwick Castle to the more modern industrial archaeology such as Woodhorn Museum.

Rural economies within the Northern Powerhouse area

The analysis above describes the strengths and vulnerabilities of rural economies in Northumberland. However, many of these characteristics are shared with other areas of the rural North of England. An attempt to summarise these issues has been made by Davoudi et al (2017) and the key points in this document are very significant to an understanding of the threats and opportunities that might be posed by BREXIT for the wider rural North. Davoudi et al (2017) identify three characteristics that are important in understanding the rural North:

- *Sparsely populated areas:* Northern England contains some of the most remote and sparsely populated areas in England including England's lowest residential densities in the Northumberland National Park. In 2008, over 305,000 people lived in areas officially categorised as 'Sparsely Populated' across the three northern regions. Residents of these areas and their small towns include a high proportion of households with incomes below the government's poverty level and are more likely to live in fuel poverty, earn lower wages, and travel further to essential services.
- *The movement of people between urban and rural areas:* analysis of flows across England in 2016 shows that rates of net migration to local authorities classified as predominantly rural areas have increased since 2008/09. In 2014-15 such areas, which define much of the rural North, received a net internal inwards migration of 64,900 people. Most of this (54,200) came from predominantly urban areas, from adults aged between 30 and 45 years, and children below 15 years of age. Important changes to service demand and provision can result from inward (or outward) migration of younger families, especially in areas of sparse or declining population.
- *High levels of economic activity:* more working-age rural residents are contributing to the North's economic and social health through paid work or self-employment than those living in cities and towns. It is also important to stress the economic and social significance and value of volunteering in rural areas.

It is important to recognise the diversity of the rural North before considering policy interventions and potential BREXIT impacts. There are several significant characteristics of the business base found in rural areas in the North. Davoudi *et al* (2017) note that in 2011-12 there were more than 121,000 businesses operating within the rural North representing almost one in four of the North's enterprises (23%). The

overall profile of rural businesses also has several distinct characteristics that are important to recognise for policy purposes. While there are some larger firms located in towns within rural areas, as a generalization, large employers are fewer in number and less significant for the local economy. In relative terms, however, self-employment, sole traders and home-based businesses (HBBs) are a more important component of the business base in rural economies compared to the urban North.

Home-based businesses obviously includes many farms and tourism enterprises. Alongside sole traders and micro-businesses, these form the core of the economy in many small settlements within the rural North. In 2011-12, for example, 22% of businesses in rural areas had no employees, a level that is more than double the rate in the urban north (9.8%). Some, like electricians, plumbers, and engineers for agricultural machinery are highly mobile, while others such as village shops, GPs, home helps and care workers serve very local markets. These businesses rarely feature in economic development plans or business support programmes, often being treated more as 'services' rather than as businesses that can be nurtured and grown. Nevertheless, in many rural communities they may provide more jobs than any single medium-sized employer. These enterprises engage in a wide variety of business activities and sectors, and face multiple challenges including reliance on part time or seasonal workers and often hampered by poor transport links and lack of dedicated business premises. This raises issues of isolation and peripherality that hampers their growth.

4. The Impact of Brexit: Policy Review

The BREXIT debate and the rural North

A comprehensive search for relevant policy literature on the possible effects of BREXIT on rural areas of the UK has identified a number of useful contributions to this debate. These include reports published by the Countryside Alliance (2017), IPPR North (2017a, 2017b), Centre for Rural Economy, Newcastle University (Garrod *et al*, 2017), Rural Coalition (2017) and various short reports from the House of Commons Library (2017a, 2017c). However, there is no single source that deals specifically with the possible impacts on rural areas in the north of England. There is comment on the Brexit implications for different regions and the north of England in general (for instance, North-East Combined Authority (2017) & ESRC (2018) but not specific to the rural area.

Our response to this situation is twofold. First, we seek to distil from these available policy documents implications that might be relevant to Northumberland and the rural North. Alongside this, we have carried out a search for reports and analyses specific to those sectors that are of relevance to the rural North with a view to identifying the key drivers of these activities and the threats and opportunities associated with Brexit. This information has been used to inform the scenarios emerging from the Delphi survey that specifically targets participants in the rural North.

There are at least two clear messages that can be derived from the discussion above regarding the characteristics of the rural North;

- First, that while land-based activities are vital, particularly for more remote communities, the economy of the rural areas of the north are highly diverse and the BREXIT effects cannot simply be reduced to a narrow range of sectors that are deemed to be “rural”.
- Secondly, rural areas are interconnected with urban regions across the North, hence the impact of BREXIT on the rural North must include consideration of the potential impacts of BREXIT on regions of the North, including the metropolitan areas.

In light of these observations, we consider first the potential impacts of BREXIT on northern regions in general and specifically on the North-East of England.

Brexit and the rural North – regional context

An overview of the possible impacts of BREXIT on the north-east region in general has been produced by the North East Combined Authority (NECA - the legal body that serves seven Councils – County Durham, Gateshead, Newcastle, North Tyneside, Northumberland, South Tyneside and Sunderland). The NECA

(2017) report estimates that the local impacts of Brexit in the North East could create between 1.3% and 2.5% reduction in GVA, depending on the nature of Brexit agreed. The report notes that the North East in general has a symbiotic relationship with European neighbours and unpicking these long-standing and often complex relationships will require a precise and careful understanding of our economy, the businesses which drive it and provide jobs for our residents, and the interconnected nature of this ecosystem. The arguments presented to support this conclusion are as follows:

- Many of the sectors and industries critical to economic growth are dependent on both European markets and access to skilled workers, often from overseas. This applies critically to motor vehicles, but there is more than this. The NE exports more services to Europe than any other region in the country and the manufacturing base is integrated into relationships with the EU single market through long-standing supply chains and export sales of manufactured goods.
- The report draws attention to the fact that the region's growing specialism in new and renewable energies relies on innovations and development that is directed in part by EU regulations and characterised by European-wide business networks.
- Even prior to the EU referendum, there has been a growing demand in the region for skilled workers in a number of sectors, including engineering, digital technology and health. Ensuring that the region has the right mechanisms in place to develop the skills of our residents is key. As a region in which population is growing more slowly than in other regions and ageing, there is a reliance on an inflow of skilled workers to drive our growth sectors as well as to deliver our vital public services. Changes to immigration controls, including the potential end of free movement of workers, between the UK and other EU states, will impact on the number of EU nationals coming into the North East, disrupting previous flows of skilled workers into important sectors by creating real and perceived barriers to migration.
- As a significant beneficiary of European Structural Funds, the North East has maximised the impact of these important funds, aligning them to its economic priorities and ensuring that they have been a vital resource in supporting our strong economic growth over the past decades. Between 2007 and 2020, over £800m of EU Structural Funds will have been invested in the North East. Within the current funding programme €289m of European Regional Development Fund (ERDF) will be invested in supporting businesses, providing finance for business, supporting innovation and putting in place measures to reduce greenhouse gas emissions. €256.9m has been allocated from the European Social Fund (ESF) to support up-skilling in areas needed by business and to support those who are

unemployed back into the labour market. A loss of these funds to the region will significantly dent efforts to continue to restructure the economy and support residents in accessing opportunities.

- As a strong exporting area, not least in growth sectors, the future arrangements for trade and customs are of critical importance to local businesses. Due to the North East's dependency on the relationship with the EU, the economy is at risk of a greater impact as a result of changes to the trading relationship. The EU is the UK's biggest trading partner, accounting for 48% of goods exports from the UK and 39% of service exports last year. This relationship is even more important for the North East. 58% of the North East's goods exports are to the EU5, higher than that of any other region apart from the South West. The EU market is especially significant for the North East, with 50% of North East service exports going to the EU, the highest proportion of any UK region.

The NECA report makes a strong case for concluding that the Region is more vulnerable to BREXIT than many other UK regions due to the structure of its economic activities and its population and labour market characteristics. The need to replace EU Structural Funds is self-evident and the UK Shared Prosperity Fund is regarded as a vital instrument to enable the region to respond to BREXIT.

NECA argues that one key factor for coping with BREXIT concerns the replacement for the EU Structural Funds. It is recognised that the proposed UK Shared Prosperity Fund provides the opportunity to improve regional economic growth funding and this is welcome. However, concern is expressed about the management and scale of this funding. NECA argues that management of the fund should be fully devolved to the region to allow strategic management and long-term investment decisions; it should also be at least the scale of the current EU structural fund and start in 2020-21 to ensure continuity in project funding. It is further suggested that there is an opportunity in this process to simplify the funding administration and set up a system based on economic need rather than through competition.

These observations on the UK Shared Prosperity Fund are points well made in the sense that they reflect lessons learned from European Policy experience that regional knowledge and partner commitment are key inputs to regional policy effectiveness. This is a vital principle, for instance, that underpins the concept of "Smart Specialisation" which adopts a "place-based" approach to policy. In practice, this means maximising the inputs from regional partnerships, making a realistic assessment of regional assets and avoidance of inappropriate transfer of models from other "more successful" regions. This logic, of course can be extended to apply to sub-regional territories – that policy intervention specifically in rural areas within the region also require a "place-based" approach and that local actors with knowledge of rural areas of the North are best placed to assess rural assets and evaluate policy options.

Brexit and the rural North – the wider impact

There are, justifiably, concerns over the vulnerability of the land-based economy in rural areas. However, as the UK negotiates leaving the European Union, it is also crucial that the needs of rural communities as a whole are taken properly into account. The Rural Coalition argues that rural considerations should inform both the terms on which we seek to leave the EU and UK (or England) laws, regulations and funding programmes that are subsequently put in place. This should be based on a broad understanding of rural and should not focus solely on agriculture and the natural environment – crucial though both of these are. Rural communities and businesses have wide interests, including housing, healthcare, education, skills, jobs, transport and broadband as well as a wider range of sectors located in many rural areas.

Thus, there are four principles that the Rural Coalition wants to see adopted in Government thinking. They are that:

- Brexit must recognise ‘rural’ is more than agriculture and the natural environment;
- All Brexit negotiations and post-Brexit policy development must be rural proofed;
- Policies and funding must deliver a fair deal for rural communities; and
- Decision-making, funding and delivery must be devolved and involve rural communities.

The Statement also identifies four policy priorities that, if acted upon, it considers would make a great difference to the quality of life of those who live or work in rural areas. They are:

- A meaningful increase in the delivery of affordable housing in villages and small towns;
- Proper recognition of rural service delivery challenges and services designed to meet rural needs;
- Long-term support for social action, to help communities become more resilient; and
- Business support and infrastructure which reaches rural areas, so that the rural economy can grow and create quality jobs.

There is considerably more policy comment on the threats and challenges of Brexit for rural areas. This is perhaps understandable given the ramifications of withdrawal from the EU’s “Common Agricultural Policy” (CAP) and the need to create a new agricultural policy for the UK. However, the possibility that these circumstances may act as triggers for opportunities and new policy approaches has also been acknowledged. Some of these opportunities are specific to the farm sector:

- CAP's objectives were criticised as being too broad and unfocused. Brexit provides an opportunity to direct support towards boosting agricultural production, investing in research, exploring the potential for GM crops, etc, and to conduct more research and innovation on Scotland's stagnating agricultural productivity, generally.
- The transition period could lead to lower area payments, exacerbating existing pressure for industry restructuring and (re)emphasising the need to support productivity improvements through, for example, advice, training and capital investment grants plus continued R&D activities.
- Agri-environmental schemes could become more important, but major challenges remain. The effectiveness of such schemes used in the past 25 years to improve the environment is questionable, and the high cost of administering them is also a major weakness. Critically, they must be financially attractive to farmers, but the use of environmental schemes to support income is currently constrained by WTO rules. Designing outcome-focused rather than prescription-based schemes may help.
- Trade flow changes risk disrupting supply chains, threatening the viability of many businesses and also affecting food prices. While prices may fall or rise, higher and more volatile prices are most harmful to more deprived groups in society who spend a much greater share of their income on food. Trade: Whilst often discussed in the abstract, the UK must continue observing EU regulations to maintain trade with the EU even from outside the single market. At the UK-level, there is a risk that concessions on economically smaller sectors such as agriculture are exchanged for benefits to larger sectors such as financial services.

Northern Devolution and Brexit

The formal institutional framework and landscape of the North have changed considerably in recent years. Changes in the North include: the replacement of RDAs by LEPs that are based on 'functional economic areas' and responsible for the allocation of European Structural and Investment Funds; devolved budgets and powers offered to city councils through City Deals and Growth Deals (subject to local institutional restructuring such as the creation of combined authorities); elected mayors; participatory budgeting and locality budgets to be distributed by councillors to their wards; and opportunities for local councils to retain business rates from new or expanded firms. However, many of the devolutionary changes (Sub-regional LEPs, City and Dev-Deals) fail to offer equity for rural communities and places (Davoudi et al, 2017).

While Rural support has been provided through the Rural Growth Networks, support from the Council for Small Industries in Rural Areas and its successor the Rural Development Commission, and from LEADER programmes, rural areas and small towns have, for the most part, been absent from debates on regional, local and national economic development. In the Government's 2016 *Northern Powerhouse Strategy* (HMG, 2016), the term 'rural' is mentioned only once and that is in relation to natural qualities. Yet rural areas make up the vast majority of the land area of the north of England. In the recent *Industrial Strategy* (HMG, 2017) there were only 10 references to rural in the 129 page document. These were mainly generic statements on the urban and rural in relation to connectivity, digital and smart energy with one short statement on the importance of partnership in promoting rural growth.

Given the centrality of the rural dimension in Cumbria, Northumberland and the South of Scotland, there were concerns that the rural implications of Brexit had not received the attention they should have had – compared to cities and city-regions. This is particularly the case in terms of the land-based economy including agriculture and agri-business. The recent UK Government backing for the North of Tyne Combined Authority and Borderlands Growth Deal is important, but a more integrated and coherent strategic approach to rural economic governance and rural productivity post-Brexit is still needed.

In terms of new governance arrangements, recent research suggests that the emphasis should be less on a 'one size fits all' (or centralised approach) and more on a flexible and multi-scalar approach. When considering repatriating powers from Brussels in conjunction with ongoing devolution initiatives, different levels of governance will now have to come into play. This will include more powers to; the Scottish Parliament; English Combined Authorities; City Deals; Borderland Growth Deals; and even to a pan-Northern approach via the Northern Powerhouse, Transport for the North or even a new Council for the North. In creating new forms of economic governance, it is vital that the government also includes rural areas in these deliberations (Northumbria University et al, 2017, p. 11).

In addition, new forms of devolution should resist the comfort of devolving power and resources only to established, higher tiers of administration and governance. New powers for Parish and Town Councils to undertake neighbourhood planning, and have their processes and proposals acknowledged by statutory planning authorities, are a key form of devolution.

More specifically, IPPR North, (2017), advocates rural devolution ‘deals’ in which central government sets ‘minimum obligations’ which local areas with a substantial rural component must meet. These should relate to food production and sustainability; environmental protection including flood prevention and decarbonisation; participation in the industrial strategy; and capital spending to support infrastructure and economic development. Local and combined authorities, working with local enterprise partnerships, should demonstrate how they will use devolved budgets to meet their obligations and add value.

IPPR therefore recommends an *integrative* and *devolved* system of ‘rural devolution deals’ in which stakeholders negotiate with central government, setting out how they can best use their natural assets to contribute to national priorities and add value locally.

The Common Agricultural Policy (CAP) has effectively operated as an ‘industrial strategy’ for agriculture, including environmental management. Withdrawal from the EU represents an important opportunity for reforms integrating the diverse elements of the rural economy and fitting it for the modern global context.

UK regional policy post-Brexit

In a recent review of the potential future of regional policy in the UK, Bell (2017) notes that

IPPR North: Ten Key Steps

1. Central government should convene an advisory group to develop and regularly review a framework of short-, medium-and long-term goals for the rural economy. This framework will also guide negotiations for rural devolution deals with devolved areas. Funding under these deals will effectively replace the CAP *but* also relate to broader and integrated aspects of the rural economy.
2. Local and combined authorities, working with LEPs, should negotiate ‘rural devolution deals’ with central government, demonstrating how they will meet minimum obligations and add value with the funding and other support which they seek. Deals should include payments to producers which support farm sustainability, incentivise good environmental practices, innovation and skills development, and support the wider rural economy.
3. Environmental protection should be considered at local and national levels; the framework for devolution deals should include requirements for neighbouring areas to work together on key issues such as flood protection.
4. The 2013 agri-tech strategy should be revisited and strengthened in the context of EU withdrawal and the industrial strategy.
5. Universities in rural areas and neighbouring cities should be incentivised to establish ‘spin out’ offices to boost agri-tech opportunities.
6. Improvements to rural connectivity should reflect the needs of both rural *trading* and *workforces*; superfast broadband provision is a priority.
7. The potential of rural areas as centres of excellence in advanced manufacturing and high-tech fields (e.g. energy) should be included in the industrial strategy.
8. Workforce and skills issues should be addressed at sector level to meet the needs of particular places.
9. Business support in rural areas should reflect distinctive business populations, e.g. numerous isolated small and micro-businesses and reliance on digital skills.
10. Rural devolution deals should include an element of ‘placemaking’, which considers how communities and quality of life support economic growth and demand in local economies; this would include access to services and housing.

the government's commitment to maintain funding until 2020 will provide some short-term relief for agencies counting on continuation of these monies. However, beyond 2020 - and assuming that Brexit involves leaving the single market and the customs union - regional policy options for the UK include the following:

(i) Discontinue the Structural Funds and rely on existing regional initiatives to deliver regional priorities. This approach would help close the UK's structural budget deficit, albeit in a relatively small way.

(ii) Continue with the Structural Funds, following EU practice in determining area eligibility and levels of funding. Bell notes that this is not a very plausible strategy given that those who voted in favour of Brexit would be unlikely to accept the continuation of EU-determined policies.

(iii) Maintain existing levels of funding to support spatial economic policies but realign them with existing UK regional policies. This would mean accepting a more locally responsive approach which is less geared to a centrally-based funding regime based on transparency. However, the success of such a devolution deal approach is yet to be seriously evaluated.

(iv) Return to 1970s policies designed to increase demand in areas experiencing high levels of unemployment or inactivity. However, this approach is unlikely to find supporters in the present government, while differences in unemployment and inactivity rates are now small compared to what they were in that era and while differences in market income and wealth have tended to increase in recent decades.

Looking ahead, Bell concludes that if the UK continues to follow a lax monetary policy combined with a tight fiscal policy, opportunities for increased funding for regional policy will be limited and that the potential losers from redirecting the Structural Funds to other public-spending priorities include a variety of stakeholders—not only local authorities, but also the Scottish Parliament and the Welsh and Northern Irish assemblies. Such bodies are then likely to contest such reductions in their funding and argue that they should be able to control the distribution of any replacement funding. It may also be difficult for a government which negotiates Brexit to cut regional policy support in areas which voted heavily in favour of Brexit' (Bell, 2017, p. 102).

In the next chapter, the report provides a more detailed examination of each of the key sectors in the rural economy in turn, focussing on: the current situation; policy drivers; and opportunities and challenges in the medium and long-term.

5. Brexit and the rural North: Assessment of Key Sectors

Since the EU referendum in June 2016, a considerable policy literature has evolved based on attempts to assess the likely impacts of BREXIT on different sectors of the economy. These reviews are wide ranging and consist of reports and pamphlets produced by policy analysts, sector lobby groups, sector specialists, government departments as well as research papers by academics. An attempt has been made to review this body of literature that includes variously assessments of Brexit effects based on data analysis as well as reports on opinion of specialists and key informants with knowledge of competitiveness in different industries. The review covers those sectors that are thought to be particularly relevant to the current and future economy of the rural North, namely:

- Agriculture
- Forestry
- Tourism
- Fishing
- Environmental and renewable energy
- Digital
- Manufacturing

A full list of the reports consulted in this review is contained in the References.

The contents of these sources have been analysed to distil key aspects of the Brexit debate applied to sectors. The current situation in each sector is assessed and key policy drivers identified. An attempt is then made to extract the opportunities and challenges faced by each sector arising from Brexit. This analysis is used to inform or verify the scenarios that have emerged from the Delphi survey.

5.1 Agriculture

Sector reviews tend to emphasise that agriculture is an important sector both nationally and regionally:

- Nationally because farmers manage the nation's countryside covering 70% of UK land area and the British food and drink industry is worth £109bn and employs 3.8 million people.¹ However, the real value of both total crop output and total livestock output fell considerably in the period 1984-2016 and agriculture's share of total employment has also fallen in each of the UK's countries.²
- Regionally because of the 39 English LEP areas, Cumbria has the second highest proportion of adults working in agriculture (nearly 12,000)³ ii) 10% of the UK's dairy herd, 8% of beef cattle and 13% of all

¹ NFU (2017), p. 12.

² House of Lords Library (2017), pp. 2, 4 and 6.

³ Cumbria LEP (2016), p. 7.

sheep and lamb stock are in Cumbria⁴ iii) the Agriculture, Forestry and Fishing (AFF) sector accounts for 25% of economic activity in Southern Scotland, almost three times the Scotland average and iv) in Northumberland, in 2013, AFF accounted for 5% of total jobs in the county and had the highest location quotient of any sector in the county (2.25).⁵

In 2016, the UK had a trade deficit of £23bn in food, feed and drink (FFD) products – a deficit both with the EU and non-EU countries.⁶ Since the Brexit referendum, UK farm incomes have been boosted due to the fall in the value of sterling leading to increased UK agricultural competitiveness and increased value of CAP payments (as these are in euros).

Sector reviews also stress that the UK agricultural sector is currently heavily dependent on the EU in relation to international trade. In 2016, the EU accounted for 60% of our FFD products and 70% of our imports; seven of the UK's top 10 export markets were EU member states; 9 of the top 10 countries from which the UK imported its FFD products were EU members.⁷

However, non-EU countries are also important for agricultural sectors as the UK's exports to the USA (the UK's 3rd biggest export market) were worth £2.3 bn in 2017 and £560 m to China (the UK's 8th largest export market).

Product-markets which are most important from the point of view of the UK's trade with the EU include:

- Wheat. The EU accounted for nearly 75% of UK exports in 2016.
- Barley. The EU accounted for over 70% of UK exports in 2016.
- Sheep. The UK exported 88,000 tonnes of sheep meat to the EU in 2016.⁸

Assessments of the Brexit effect note that the present system of the CAP is far from beneficial for farming in the North and there are disadvantages with the current system:

- Payments are no longer tied to food production but instead to acreage and therefore can reward already wealthy landowners. It pushes up the price of land. This creates a barrier to entry for new farmers and entrenches lower productivity.⁹

⁴ Cumbria LEP (2016), p. 8.

⁵ Northumberland County Council (2015), p. 14.

⁶ House of Commons Library (2017a), p. 3.

⁷ House of Commons Library (2017a), p. 3.

⁸ House of Commons Library (2017a), p. 9.

⁹ Gove (2018a), p. 4.

- UK 2020 argues that UK self-sufficiency in food production is 13% lower than it was 20 years ago.¹⁰
- UK 2020 argues that it prevents the UK's ability to negotiate potentially beneficial trade agreements with non-EU countries.¹¹
- UK 2020 argues that the EU has failed to keep pace with advances in agricultural technology due to taking the "Precautionary Principle" rather than the "Innovation Principle".¹²
- Pillar 1 payments under the CAP have yielded hardly any environmental benefits.¹³

However, the NFU argues that without the current direct payments to farmers under CAP, many farmers would have gone out of business due to price volatility of food products giving rise to extreme income volatility of farmers.¹⁴

Policy Drivers

An attempt has been made to assess the general impact of different outcomes of the Brexit negotiations with the EU for the farm sector. These scenarios have been depicted by the Centre for Rural Economy at Newcastle University (2017)¹⁵:

- **Brexit Lite** - UK negotiates a free trade agreement with the EU. This would mean marginal changes in production and value of output.
- **Brexit Comp** - The UK has free trade with the EU and also the rest of the world. Trade liberalisation option desired by the Institute of Economic Affairs. This would mean reduced prices and UK output values across all commodities. Marked downward effect on beef and sheep sectors.
- **Brexit-WTO** - where no trade agreement was reached with the EU and WTO rules would apply. This would lead to significant adjustments in trade between the UK and EU. EU tariffs and non tariff barriers would affect UK exports.

Much discussion also surrounds a range of factors that are thought to be of significance in determining future trends in the farm sector. These include:

- The impact of technology on "Smart Farming" – precision farming, genetic biotech.
- National and global population growth increasing the demand for food.

¹⁰ UK 2020 (2017), p. 1.

¹¹ UK 2020 (2017), p. 4.

¹² UK 2020 (2017), p. 4.

¹³ Gove (2018a), p. 4.

¹⁴ NFU (2017), p. 4.

¹⁵ CRE (2017).

- Labour shortages in the rural North due to migration; ageing economy and succession issues; labour availability in farming and competition with other sectors in the rural economy; affordability of rural housing.
- Shift in funding to attention on “natural capital” in government policy.
- Impact of climate change – warmer climate and greater probability of flooding events.

Opportunities

It is recognised by all bodies – DEFRA, the NFU, the CLA that leaving the CAP will create the opportunity for a new and “better” Domestic Agricultural Policy to be put in place. The Government wants “the new system to deliver benefits such as improved air, water and soil quality; increased biodiversity; climate change mitigation and adaptation; and cultural benefits that improve our mental and physical wellbeing while protecting our historic environment.”¹⁶

DEFRA and the NFU foresee the period post-Brexit as consisting of 3 phases.

Phase 1: March 2019-Feb. 2021

Period of relative stability and continuity for the sector as Government is committed to maintaining cash funding to the sector to the end of the current Parliament including “all funding provided for farm support under both Pillar 1 and Pillar 2 of the current CAP”.¹⁷ Launch of pilot schemes of new funding initiatives and emphasis on the environment. Government will simplify applications for farmers wishing to enter existing schemes providing environmental benefits such as Countryside Stewardship. Direct payments will be phased out.

Phase 2: March 2021-2023

Review and assessment of pilot schemes. Impact assessment of post-Brexit trading environment.

Phase 3: 2023 onwards

The new Domestic Agricultural Policy is fully implemented. However, the date for its full implementation may be postponed depending on whether the Brexit settlement has had a great adverse effect on the sector.¹⁸

¹⁶ Gove (2018b), p. 8.

¹⁷ NFU (2017), p. 17, DEFRA (2018), p.3.

¹⁸ NFU (2017), p. 17.

At a regional level, policymakers across areas included in the rural North have recognised the threats to this sector and also considered how policy might support this transition. As an example, Cumbria LEP sees a number of opportunities for the County:

1. Cumbria could be offered to the country as a test bed/exemplar for new locally designed and delivered rural/agricultural development programmes that ensure economic, environmental, social and cultural benefits. They suggest the partners in this to be the LEP, farmer groups, Natural England, the local authorities, the National Park, the National Trust and existing LEADER groups.¹⁹
2. Add value to the County's milk products by increasing the amount of processing that is done in the County.
3. Develop and expand expertise in environmental land management. Encourage Cumbria and Lancaster Universities to provide research institutes in this field.
4. Develop the cluster of agricultural supply, technology and advice businesses²⁰.
5. Re-invigorate the Cumbria/Lake District brand in order to sell the best of the County's produce. ie. "Taste the View" and "Feel the View" marketing.

Challenges

The House of Lords (2017) and the SRUC (2017) believe that there may be additional challenges for the sector if no trade agreement is reached with the EU and WTO rules apply:

1. The government may have difficulty in providing agri-environment support to farmers in compliance with WTO rules.
2. There is concern for the UK food industry once outside the customs union due to the potential for customs delays.

It is not yet known whether there will be devolved power for Scotland to control and deliver spending on agriculture. The SRUC (2017) argues that Scottish agriculture would be more exposed to trade restrictions than England.²¹

5.2 Forestry

More than anywhere else in England, the forestry sector in the North is a vital part of the land-based economy. It comprises the following:

¹⁹ Cumbria LEP (2016), p. 27.

²⁰ LEP (2016), p. 3.

²¹ SRUC (2017), pp. 1-2.

- woodland creation;
- woodland management;
- delivery of woodland based conservation, biodiversity, flood alleviation, carbon sequestration and landscape benefits;
- timber production, wood processing and production of wood products.

The Forestry Commission estimates that there are over 4,500 forestry-related businesses in the UK, including 550 sawmills (Forestry Commission, 2017). Forest covers around 13% of the UK land area but this varies considerably between national territories. Coverage is higher in Scotland (18%) and Wales (15%) compared to England (10%) and Northern Ireland (8%).

There are significant variations also within England. The public sector plays a significant role in managing forestry in the rural North. The Scottish Borders and northern England together represent the most important area for wood production and processing in the UK, accounting for one third of total UK production. Key facts include the following:

- Around half of all woodland in NE England is owned and managed by the Forestry Commission.
- Kielder Forest Park is one of the largest man-made forests in Europe covering an area of 60,000 hectares mainly across Northumberland between the Scottish Border and Hadrian's Wall.
- There are major forested areas in Cumbria including Grizedale and Whinlatter as well as around 30 separate areas of woodland elsewhere in the North-East of England.
- Just across the border in Scotland are extensive areas of forest and either side of the border are major wood processing plants such as BSW at Carlisle, James Jones at Lockerbie and Eggers at Hexham.

Drivers

On the demand side, the key driver of commercial aspects of forestry relates to the UK construction industry but also demand from pulp and paper processing and distribution (wooden pallets) (UNECE, 2017). In general, domestic demand outstrips domestic supply considerably. Imports accounted for 82 percent of wood consumption in the UK in 2016 (Forestry Commission, 2017). The UK is the second largest wood importer in the world.

On the supply side, commercial development and exploitation of UK forests is subject to regulation covering environmental impacts, biosecurity and pest control. Most of these are EU-Wide agreements (Glynn, 2016). UK government also legislates on sustainability principles. Felling is subject to a licencing system (Forestry Act, 1967) managed by the Forestry Commission as regulator. In most cases, felling

licences require the area felled to be replanted. In addition to the Government regulation of forestry provided by the Forestry Commission and based on the UK Forestry Standard, there are also voluntary certification schemes such as the UK Woodland Assurance Scheme (UKWAS) overseen by the Forest Stewardship Council. Overall, across the UK, 44% of UK woodland is certified as complying with this standard. During 2016-17, 7,000 hectares of new woodland was created in the UK with conifers accounting for just over half (54%) of this total.

Supply of timber is also strongly influenced by fairly stable patterns of ownership – 27% is state owned and 73% in private ownership including prominently the National Trust. Since the 1970s, while new planting has occurred, the rate of re-planting has declined considerably and during 2016, the number of new trees planted fell to its lowest level on record (Priestley and Sutherland, 2016). However, interest in planting large productive woodlands is rapidly increasing once more in England. The Doddington North and Lowther schemes, totalling around 500ha, were planted last year and were the first large scale productive planting schemes in England for thirty years.

Opportunities

As the UK is a major net importer of wood and wood products, any restrictions on trade with Europe could increase the cost and availability of imported wood products supplied to the UK construction industry. Equally, exchange rates are a really important factor. A low pound means home-grown timber is very price competitive, increasing demand for it and increasing timber prices. This has happened in the wake of the Brexit referendum and is likely to continue post-Brexit. There may be opportunity for UK timber suppliers to develop innovative wood products to supply this demand from domestic sources. This also puts greater pressure on Government to address some of the barriers that are currently putting a break on productive woodland creation in England.

The changes to agricultural policy post Brexit will have a fundamental impact on forestry, in particular the changes to policy on payments to farmers. The demise of the Basic Payment Scheme is likely to lead to a reduction in land values, making afforestation an attractive option for more farmers. However, much depends on what happens with the new Environmental Land Management Scheme (ELMS). If the payments rates are set such that they make up for the absence of BPS there could be little change in land values. That said, it is likely that woodland creation will be a major feature of ELMS. So even if land prices don't fall ELMS may provide sufficient incentive for a significant upturn in planting rates.

There are also considerable drivers creating opportunities that are not directly related to Brexit. The most important of these is climate change and the global response to it. Afforestation is a very effective method of carbon capture. The Government's Clean Growth Strategy advocates a substantial increase in the rate of afforestation to sequester more carbon. Going forwards, further international treaties, building on Paris, are likely to put more pressure on the Government to reduce carbon emissions and increase carbon capture. Forestry has an important part to play here.

Challenges

In the short term, The Confederation of Forest Industries (CONFOR) suggests a number of potential negative impacts of BREXIT on the forestry sector:

- Forestry businesses will be affected by possible changes in employment legislation, and restrictions on free movement of labour;
- Public funding for woodland management is under threat due to withdrawal from the European Agricultural Fund for Rural Development (EAFRD). This funding is currently a devolved budget in the UK. It is currently not clear how any replacement for EAFRD will be managed.
- Barriers to trade with Europe may have long-term negative effects on UK planting and harvesting as the UK forestry industry may come under pressure to increase timber supply to meet domestic demand (Morgan Tatchell-Evans, 2016).
- Brexit may lead to changes in UK environmental policy regarding protection currently provided to large-scale forested areas. Rates of felling and practices are at present covered by EU Directives that require detailed Environmental Impact Assessments. However, given that much of the productive woodland resource is independently certified and given the assurances that the Government is giving over environmental protection, this is probably only a theoretical threat.

5.3 Tourism

Sector reviews emphasise that tourism is an important sector both nationally and especially for this region. *At the UK level:*

- It is the UK's third largest employer providing jobs for 3.1m people (9.6% of the UK workforce) and contributes £127bn to the economy (7.1% of GDP).²²

²² Tourism Industry Council (2016), p. 3.

- Since 2009, the UK tourism industry has “grown at a faster rate than most other industries; generated additional employment at almost twice the rate of other countries and increased export earnings by 26.5%.²³
- According to the Tourism Alliance (2017), the UK is currently the 5th most popular country in a ranking of 50 countries in GfK Arnholt’s annual survey of 20,000 consumers from 20 panel countries.²⁴
- Currently, receipts from inbound tourism are worth £25.4bn to the UK economy, making the UK inbound tourism industry the 6th largest in the world.²⁵ Also, it would appear reasonable to expect growth in line with or above that predicted by the United Nations World Tourism Organisation (UNWTO) who say that international tourism will continue to grow at a compound rate of 4.2% per annum which would mean that the UK would be receiving £32bn by 2025. Domestic tourism is also predicted to rise at a similar rate.²⁶
- The Tourism Alliance (2017) argues that the growth of outbound tourism from the UK (currently worth more than £26bn to the UK economy) should also match that of the rest of the UK tourism industry. The former provides more than 400,000 jobs and ensures that the UK is one of the world’s key hubs for international travel.²⁷
- Business travel provides £4.5bn in revenue to the UK economy (20% of total tourism revenue) and supports 100,000 jobs in the UK. Of this, around half comes from other EU countries.²⁸

At the Regional level

The importance of tourism for the rural North of England is widely recognised and also shared with policymakers working in the South of Scotland. Various headlines can be abstracted from documents:

- In 2013, in Northumberland, tourism accounted for 13,200 jobs or 13% of total employment and had experienced growth in the past 5 years of 18%. Compared to the England average in 2013, the County had a location quotient in tourism of 1.33.²⁹
- In 2016, Cumbria received just over 45 million visitors. They brought in £2.72 bn to the economy and provided employment for 36,240 FTE posts. As many tourism jobs are actually part-time or seasonal, the total number of people in tourism jobs is estimated at 62,316, around 20% of the County’s total

²³ Tourism Alliance (2017), p. 1.

²⁴ Tourism Alliance (2017), p. 2.

²⁵ Tourism Industry Council (2016), p. 3.

²⁶ Tourism Alliance (2017), p. 3.

²⁷ Tourism Alliance (2017), p. 3.

²⁸ Tourism Industry Council (2016), p. 18.

²⁹ Northumberland County Council (2015), pp. 14-15.

employment.³⁰ The Lake District is the most visited national park in the country and generates the largest tourism spend of any in England and Wales.

- In the Scottish Borders, the 1.9 million tourists and 3.7 million day visits per annum were estimated to generate £176M of GVA.
- In Dumfries and Galloway, tourism was estimated to contribute £57-68M to GVA and provide 5,400 jobs.³¹

Sector reviews also stress the sector's dependence on the EU. For example, of the UK's top ten source markets for inbound tourism, 8 are other EU countries; 11% of all tourism employees in the UK are EU nationals³² and; the current structure and focus on business support for the industry is heavily influenced by the availability of EU funding.

Industry Drivers

Industry experts suggest that tourism is a sector that is likely to be sensitive to the Brexit negotiations relating specifically to rules relating to the movement of workers. The Tourism Industry Council (2016) has noted these points:

- EU nationals currently make up 11%³³ of the overall tourism workforce in the UK and there remains the question of whether they will be able to stay in this country after Brexit and also whether they can be easily sourced in future. The Tourism Alliance (2017) says that businesses have become increasingly reliant on EU nationals to fill vacancies and some businesses have very high numbers of such workers. Without them, some will surely close particularly in Cumbria where there is already a shortage of skilled workers to fill vacancies in the hospitality industry.
- If ease of travel between countries in the EU and the UK is made more difficult, this may act as a deterrent to some tourists coming from abroad.
- In addition to any problems with ease of travel, business and corporate tourism may be affected by lower investment activity in the UK from the EU. Currently, around one half of all business travel in the UK emanates from the EU.³⁴

³⁰ Cumbria Tourism (2017), p. 1.

³¹ Figures for the Scottish Borders and Dumfries & Galloway are taken from the report by the Universities of Northumbria and Cumbria (2015), p. 38.

³² Tourism Industry Council (2016), p. 6.

³³ Source: Tourism Alliance (2017), p. 2.

³⁴ Tourism Industry Council (2016), p. 18.

- Significant EU funding that supports the UK tourism industry is received through the ESIF Programme. It is particularly important to areas such as Cornwall and Wales which currently receive more than £800 per person from the ESIF – a significant proportion of which supports coastal and rural tourism development. When the ESIF money disappears, public funding for tourism will fall by around 50%.³⁵
- There is also the question of whether the employment rights of UK nationals working in the tourism industry in the EU will be maintained. If not, the outbound travel sector may be adversely affected.

Discussion surrounds a range of other factors that are thought to be of significance in determining future trends in the tourism sector. These include:

- Labour shortages - the Tourism Alliance (2017) points out that there is an imminent shortfall in skilled labour that is needed for the tourism industry. In addition to the need for migrant labour, as stated above, the sector finds it difficult to recruit due to a number of reasons: i) skill shortages ii) the relatively low rates of pay in the sector iii) the availability of affordable housing in the National Parks in particular and iv) the distance required for staff to travel to training institutes. The Tourism Alliance (2017) reports that “38% of hospitality and tourism businesses are reporting that they have hard-to-fill vacancies. In addition, the existing high level of demand for staff means that 21% of businesses are reporting that the staff that they are employing lack essential skills.”³⁶
- Growth in demand - it is believed that national and global population growth and income growth will continue to boost demand for travel and tourism. The opening of the airport at Carlisle to passenger traffic in 2019 is also expected to increase tourism in the County.
- There is a high rate of entrepreneurial activity in this sector in rural areas. However, it has also been said that small/micro businesses often suffer from their own manager’s lack of strategic skills.
- Investment in public transport and development of new technologies in transport and travel - according to the Tourism Alliance (2017), there are also initiatives underway to simplify and improve the ticketing system for rail travel. The Alliance calls for the integration of rail and bus networks and timetables. They also believe that there should be more information provided in other languages. In addition, they would like to see greater use of coaches.
- With the abolition of CAP payments from the EU, the Government intends to shift the emphasis of funding in agriculture towards “natural capital.” In January 2017, the then Secretary of State for DEFRA stated that the ambition of government was to “become the first generation to leave the

³⁵ Tourism Industry Council (2016), p. 23.

³⁶ Tourism Alliance (2017), p. 6.

environment in a better state than when we found it.”³⁷ Michael Gove (2018) has also said that he would like to see access to the countryside increased. These initiatives should increase tourism in the Border region given the beauty of the counties’ natural assets and the possible further diversification of farming into tourism-related activities.

- There are strong links between the tourism sector and other rural sectors especially food and drink manufacture.
- The impacts of global climate change and environmental pressures may impact on tourism.

Possible solutions to some of the labour shortage problems have been proposed by different bodies. The Tourism Alliance (2017) would like to see the Government expand the TIER 5 Youth Mobility Scheme which allows young people from some Commonwealth countries to work in the UK, to include EU nationals. They also propose that Government should relax the rules governing the ability of overseas students in the UK to work in the industry whilst they are studying here. They advocate greater provision of careers information, advice and guidance on the sector’s career opportunities and funding to incentivise the delivery of sector programmes and apprenticeships rather than these all being towards STEM sectors.³⁸ In Cumbria, the LEP suggests that if opportunities for flexible, part-time work across the sector were effectively marketed, then it could help solve labour supply issues and provide employment for older professionals.³⁹

Opportunities

The sector reports indicate a number of opportunities for the sector to grow:

- The depreciation in the value of sterling is seen as an opportunity to attract more international tourists to the UK whilst also increasing the level of staycations. The Tourism Alliance estimated that in 2017 the UK would see an increase in inbound visitors of 8% and also an increase in domestic tourism of more than 4%.⁴⁰
- The Tourism Alliance (2017) recognises the importance of coastal destinations in attracting visitors who spend in total £13bn in the local economy in the UK. However, they believe that there are stark differences in the performance of seaside destinations across the UK and they would like to see firstly,

³⁷ Cumbria LEP (2017), p. 25.

³⁸ Tourism Alliance (2017), p. 7.

³⁹ Cumbria LEP (2017), p. 23.

⁴⁰ Tourism Alliance (2017), p. 6.

enhancement of the Coastal Communities Fund and secondly, the introduction of Coastal Enterprise Zones. The intention of these would be to encourage businesses to invest in skills, product development and enhancing the visitor experience at these coastal locations. They see investment in infrastructure as being “critical as many coastal communities are geographically peripheral with unreliable rail, road, flood and telecommunications infrastructure.”⁴¹ They also argue that the key to the success of rural businesses is the creation of a Universal Service Obligation of broadband service of at least 10 Mbps.

- The Tourism Industry Council (2016) regards the tourism industry as a “key component of rural, seaside and regional economies. It says therefore, that funds currently granted through the CAP and ESIF programmes need to remain available until the end of 2020 to allow the Government the time to put in place national funding replacements. However, the ending of CAP payments is seen as an opportunity to reassess incentive structures so that linkages between farming, tourism and the environment are taken into account. A re-alignment of the balance between agriculture and rural heritage will create more job opportunities in tourism, construction and local economies and have benefits for well-being and the environment.
- The Government’s Tourism Action Plan (2016) states that it wishes to see the growth and spread of the benefits of tourism to the regions. The Tourism Industry Council (2016) therefore proposes abolition of Air Passenger Duty on domestic flights as this would act as a boost to regional airports and tourism outside London. Rory Stewart, MP for Penrith and the Borders constituency, in his paper on the new Borderlands Growth Deal (2018) is calling for the inter-connectedness of urban and rural communities to be recognised. Projects which centre on producing a vibrant and sustainable rural and upland economy for example can also benefit the towns through the provision of stronger tourist trade, better water management and improved recreational options. He would like to encourage the development of community-led and low-cost innovation projects involving match_funding between partners.⁴² The Tourism Alliance (2017) also sees tourism as an important mechanism for redistributing economic activity and wealth from urban to rural and to seaside areas of the UK.

⁴¹ Tourism Alliance (2017), p. 5.

⁴² Stewart, R. (2018), p. 3.

In addition, the opportunities for growth of the sector within this region have been echoed in the various policy statements, investments and economic monitoring across rural areas of both Northumberland and Cumbria, as follows:

- There is widespread recognition of the tourism assets in rural Northumberland. The County Council in its Economic Strategy document (2015) recognises the importance of its stewardship of its “rich built and natural heritage” namely, of such places as Hadrian’s Wall, the National Park and AONBs.⁴³ It also specifies the development of “a long-term programme of place making, capital projects, conservation and investment in the public realm with a focus on town centres and other key locational assets such as tourism related infrastructure.”⁴⁴ Northumberland Tourism, whose monitoring of the sector demonstrates positive signs, show that despite Brexit uncertainties, there have been annual increases in visitor numbers (up 5.7% 2016 to 2017). A significant new investment has also been made to the visitor economy in Northumberland during 2017 with the opening of the Sill National Landscape Discovery Centre. This is a high-quality all-weather visitor centre that celebrates the landscape of the National Park. The Sill, which involved investment of £14.8m has been developed through key partners including prominently the Northumberland National Park Authority, the Rural Growth Network and Youth Hostel Association.
- Cumbria LEP also recognises the significance of tourism for the County. They suggest that Cumbria should use the Lake District’s newly acquired World Heritage Status to raise the profile as a destination. Two of the LEP’s priorities are to increase Cumbria’s international visitor spend and improve market penetration in London and the South-East. Currently, international visitors account for only 7% of visitor nights in the County while half of staying visitors are from the north of England. They suggest the design of packages of “experiences” which will appeal to overseas tourists. There are also ideas being discussed to promote new quality food and drink, events and festivals, adventure sports and the development of heritage trails. It is suggested that the County could attract new and encourage repeat visitors by developing enhanced digital mapping and information to enable people to navigate the Lake District and encourage the use of electric cars and electronic parking information. Cumbria LEP believes that the County is well placed to attract people from the creative industries and also to become the “Rockies of the UK” – that is a place where people come to live and work. The

⁴³ Northumberland County Council (2015), p. 61.

⁴⁴ Northumberland County Council (2015), p. 68.

County, it is argued, could attract “lifestyle” businesses and those who wish to work remotely from home avoiding the commute and experiencing a healthier and more contented pace of life.

- Other ideas regarding tourism development in the rural North have been proposed in relation to the Borderlands development. A paper prepared by Rory Stewart, for instance, suggested that much more could be made of the concept of “wilderness” through a 100 mile route linking Hawes in North Yorkshire passing through the “forgotten lands” into the Scottish Borders via Newcastleton to Eskdalemuir. The arbitrary nature of the Anglo-Scottish Border in relation to tourism is also highlighted by the suggestion that tourism in the rural North could benefit from a coordinated investment plan for visitor attractions associated with the Borders towns of Hawick, Galashiels and Melrose. The paper also points to existing Department for Transport proposals of dualling of the A69 which would facilitate visits from local population centres to the new or enhanced visitor attractions along the Wilderness route.⁴⁵

Challenges

The sector reports identify a number of challenges for the UK tourism industry:

- If the UK’s future relationship with the EU is outside the Single Market, there will be a depressive effect on investment in the tourism industry especially in the hotel sector.
- Currently, there is close cooperation between the airports of the UK and the EU such as through the European Aviation Safety Agency, Single European Sky and in security arrangements. It is not yet known whether this will continue and what might be the consequences if it doesn’t.
- The Tourism Alliance (2017) fears that if the government does not urgently work with the industry to develop and implement a plan for filling staff shortages in the sector, there will be increased employment costs and hence, higher prices to consumers. This will make the UK less competitive in the international market.⁴⁶ In Cumbria, the additional fear is that with the expected West Coast development, it may suck labour from the rural economy. Nigel Wilkinson, who leads on tourism issues for the Cumbria LEP, told delegates at the North West Hospitality Show (2018) that “problems caused by lower unemployment are being exacerbated by an ageing population and Brexit which is already reducing the migrant workforce.”⁴⁷

⁴⁵ Stewart, R. (2018), p. 5.

⁴⁶ Tourism Alliance (2017), p. 6.

⁴⁷ In Cumbria (2018)

- According to the Tourism Alliance (2017), the World Economic Forum ranks the UK as 140th out of 141 countries in terms of price competitiveness, mainly due to visitors facing very high levels of taxation. It would therefore like to see government institute a new tax regime for the sector that stimulates growth eg. A reduction in VAT rates for accommodation, restaurant meals and attractions.⁴⁸ The Alliance is also calling for the abolition of Air Passenger Duty for all domestic and international journeys departing UK airports so that the UK becomes more competitive as a place to do business or go on holiday and which will also lower the cost of travel for UK citizens.⁴⁹
- The Heritage Alliance (2017) says that it deplores the currently low priority given to the safeguarding of cultural and natural heritage in the rural economy, quoting that under the Countryside Stewardship Scheme, 95% of funding goes on habitats, species and water in order to meet EU objectives with only £5M per annum going to heritage.⁵⁰ The Heritage Alliance argues that unless there is an improved replacement of CAP funding, much of our “rural heritage” will be lost. They quote that 84% of scheduled monuments are in agricultural land⁵¹ and that almost a third of these are impacted by agricultural practices (such as cultivation) or natural processes (such as animal burrowing, erosion and scrub growth).⁵²
- In Cumbria, it is argued that there needs to be investment in infrastructure to support tourism. For example, parts of Cumbria were badly affected by floods in 2009 and 2015 which hit tourism in the county since some of the worst flooding was centred on Keswick, Cockermouth, Glenridding and Pooley Bridge in the Lake District and the main road alongside Thirlmere was closed for several months, making travel through the National Park very difficult.
- At a national and global level, concerns over rising air pollution may lead to increased air taxes and therefore reduced air travel in future.

5.4 Fishing

Sector reviews emphasise the declining importance of the fishing industry in the British economy. Britain’s fishing industry used to be of great significance both nationally and regionally. However, declining fish stocks and membership of the EEC and EU have caused a long-term decline of the industry.

⁴⁸ Tourism Alliance (2017), p. 2.

⁴⁹ Tourism Alliance (2017), p. 9.

⁵⁰ Heritage Alliance (2017), pp. 1-2.

⁵¹ Source: Heritage Alliance (2017), p.3. Secondary Source: Historic England.

⁵² Heritage Alliance (2017), p. 3.

The Marine Management Association, for example, states that the UK fishing fleet has fallen by 29% since 1996.⁵³

In 2016, there were 11,757 fishermen in the UK and of these, 5,306 were in England and 4,823 in Scotland. UK vessels landed 701,000 tonnes of seafood into the UK and abroad with a value of £936 M.⁵⁴ The fishing industry is not, however, of great statistical importance to any of the 4 Borderlands counties, comprising only 0.1% of total employment in each (and less than 0.1% in Cumbria). In absolute terms, it is of greatest importance in Northumberland where, in 2016, 150 people were employed in a total of 55 enterprises.⁵⁵

Trade access, however, is vital for the industry as Britain exports the bulk of what it catches and imports the majority of what it consumes – cod, salmon, tuna, haddock and prawns.

Sector reviews stress the sector's current dependence on the EU:

- *The Independent* cites the fact that “Europe imports about 75% of the British catch, a cornucopia of 40 species that is too exotic for most domestic consumers.”⁵⁶
- Equally, access to the UK's seas is vitally important for many European fishermen. For example, 60% of mackerel and 40% of Dublin Bay prawns which together make up 60% of the value of all Irish fish landed in Irish ports, comes from UK waters. Also, it is said that Belgian fishermen get around half of their catch from UK waters. Similarly, one third of the output of France's northern departments of Normandy, Brittany and Hauts-de-France comes from UK waters.⁵⁷
- It is said that the Common Fisheries Policy (CFP) quota system is and has been the greatest frustration for British fishermen, giving for example, 84% of cod in the English Channel to France and just 9% to Britain.⁵⁸
- In 2014/15, France, Spain and Ireland accounted for 36% of the UK's total tonnage exported to its top 20 export markets.⁵⁹
- Under the CFP, the UK has been allocated €243.1 M of funding to support fishing communities.

Drivers

⁵³ House of Lords Library (2017), p. 7.

⁵⁴ House of Lords Library (2017), p. 6.

⁵⁵ Source: NOMIS data for 2016.

⁵⁶ *The Independent* (2017), p. 2.

⁵⁷ *The Independent* (2017), p. 4.

⁵⁸ *The Independent* (2017), p. 5.

⁵⁹ *Financial Times* (2018), p. 1.

The future of the industry is almost entirely dependent on the Brexit deal reached since this will have impacts on: Fish quotas; Access to UK coastal waters; Fisheries management and enforcement; Trade access with the EU and; Public funding of fishing communities.

Other drivers identified include:

- Environmental sustainability
- Protection of the marine environment
- Consumers' demands for different types of fish
- The UK's ability to forge favourable new trading relationships with non-EU countries.

Opportunities

Given the fact that EU fleets take four times as much fish out of UK waters as the UK takes out of EU waters⁶⁰, it is not surprising that an online survey conducted by the University of Aberdeen in 2016, just before the UK Referendum on Brexit, of fishermen, shippers and boat owners across the UK, found that 92% said that they would be voting to leave the EU. This high statistic makes the sector radically different with regard to the general level of Euroscepticism felt by the UK population as a whole.⁶¹ However, it does mirror the apparent sentiment felt by those in the industry that the UK's membership of the EU has been disadvantageous. Industry reviews therefore tend to regard leaving the EU as an opportunity to recover sovereignty rights for the British industry allowing UK fishermen to catch and land more fish.

The National Federation of Fishermen's Organisations (NFFO) (2018b) would like to see the UK assume full power of its status as an independent coastal nation from March 2019 with no transitional deal being negotiated with the EU. This would give the UK exclusive access to up to 200 miles from its coast – the norm under the UN convention on the Law of the Sea. This, of course, would mean that there would be a lot more fish that UK fishermen would be allowed to catch. It is stated that the EU's fishing zone would amount to less than 20% of the North Sea and around 50% of Western Waters.⁶² In the University of Aberdeen survey in 2016, it was found that "around 75% believe that leaving the EU would have no

⁶⁰ A statistic stated by The Independent (2017), p. 5.

⁶¹ University of Aberdeen (2016), p. 1.

⁶² National Federation of Fishermen's Organisations (2018b), p. 1.

detrimental effect on the trade of fish. Indeed, more believe it would improve trade than would hinder it.”⁶³

The NFFO argues that as an independent coastal state, the UK would then take its seat in international fisheries negotiations alongside other coastal states such as Norway and the EU. The CFP’s decision-making process, they argue, should then be replaced with annual (bilateral or trilateral) international agreements with the countries with which the UK shares stocks.

It is envisaged that the UK would then trade some of its access rights with other countries, including rights for access to the EU’s seas or the EU market for fisheries products. *The Independent* (2017) states that restrictions to EU market access might otherwise take the form of tariffs which could be as high as 24% on seafood.

Challenges

The industry reviews tend to be pessimistic about the UK fishing industry’s future. In January 2018, the European Commission stated that “it will insist on the status quo for quota shares and access arrangements, at least during any transition or implementation period; and will also press for the UK to be tied umbilically to the CFP for the foreseeable future.” The NFFO argues that the UK would then become a rule-taker without actually having a seat on the decision-making body! Instead, the NFFO argues that it should have a 12-mile exclusive limit for its coastal fisheries and that the UK’s quotas of shared stocks should broadly reflect the resources that are located within UK waters, which they don’t currently. Indeed, in March 2018, the UK and the EU agreed the transition arrangements and the NFFO reported that “the UK was given a binary choice: either a 21-month transition, largely on the EU’s terms, to smooth the UK’s departure from the EU; or crashing out of the EU, the single market and the customs union, unprepared, just over a year away. Faced with this choice, the UK backed down and swallowed the package as a whole. Decisions made with the UK outside the room will apply to the UK, in their entirety, for the period of the transition.”⁶⁴ From now until October, the two sides will be considering the UK’s future economic relationship with the EU and the NFFO says that “the concern in the fishing ports has to be that come the end-game in October, the UK will be faced with the same binary choice, and with the same outcome for fishing, as the price that the EU will seek to extract for a preferential trade deal.”⁶⁵

⁶³ University of Aberdeen (2016), p. 1.

⁶⁴ NFFO (2018c), p. 2.

⁶⁵ NFFO (2018c), pp. 2-3.

Once outside the EU, the UK will need to find a new mechanism to replace the CFP's current role in deciding on fish quotas, marketing standards, competition rules, import tariffs and provision of market intelligence.

The ability of the UK to forge favourable new relationships with non-EU countries has been questioned by some as the UK will lose "the collective bargaining power of the EU" in negotiations with Norway, Iceland, Russia, the Faroes Islands and Greenland, for example.⁶⁶ Also, if restrictions are imposed on trade with the EU, this might mean tariffs as high as 24% on seafood.

The UK will still have to comply with EU market obligations in order to export fish to the EU.

⁶⁶ House of Commons Library (2017c), p. 10.

5.5 Digital Sector

Sector reviews emphasise the substantive progress achieved in the digital sector over recent years with regards to coverage and usage of broadband and mobile phones. However, there is a distinct rural divide. This is supported by evidence as follows:

Broadband coverage

- Ofcom (2017) in December 2017 reported that across the UK, 230,000 small businesses (7% of the total) cannot receive a basic broadband service (defined as a download speed of at least 10 M/bit/sec) whilst 500,000 small businesses (16% of total) do not have access to superfast broadband.⁶⁷ The problem is less pronounced in England than it is in the other four nations. Ofcom (2017) quote research that shows that download speeds below 10 M bits/sec constrain people's usage notably. Hence, this is still acting as a constraint on rural businesses in the region.⁶⁸
- There has been good progress nationally on geographical coverage of "decent" broadband service with only 3% of all premises in England being unable to get decent broadband compared to 5% in 2016. Also, with more people upgrading to superfast services, the amount of data carried by UK fixed access networks per month increased by 52% over the year 2016-17.⁶⁹
- Ofcom also notes that coverage is lower for small businesses on trading estates and in business parks where only 74% of small businesses can access superfast services compared to 84% for the overall population of small businesses and 91% for the population of the UK's properties as a whole.⁷⁰

The rural digital divide

However, the urban/rural divide is highly significant with 17% of premises in rural areas of the UK being unable to access decent broadband but only 2% of urban properties unable to do so. This also differs markedly in Scotland with 2% of urban properties unable to get decent broadband but 27% of rural properties unable to do so.⁷¹

Mobile phones and the rural divide

Ofcom (2017) reports that:

- Within their home or office, indoor telephone call coverage is now available in 90% of UK premises.⁷² However, this falls to 57% in rural areas.
- Good progress has been made on mobile phone coverage whilst away from home with 70% of the geographic area of the UK having call coverage up from 63% in 2016 and 63% of total area

⁶⁷ Ofcom (2017), p. 2.

⁶⁸ Ofcom (2017), p. 15.

⁶⁹ Ofcom (2017), p. 3.

⁷⁰ Ofcom (2017), p. 12.

⁷¹ Ofcom (2017), p. 11.

⁷² Ofcom (2017), p. 4. Figures quoted assume access from all four mobile networks.

having mobile **data** coverage up from 52% in 2016. However, only in 40% of the geographic area of Scotland can people make outdoor telephone calls using their mobile phones.⁷³

- Just 18% of rural premises in the UK can receive an indoor 4G service from all operators compared to 64% in urban areas.⁷⁴

However, improving coverage in rural areas is challenging, especially in mountainous or extremely remote locations. In addition to practical difficulties of installing and maintaining network equipment in these locations, the commercial business case for operators to provide coverage in areas of low population density can be challenging⁷⁵ and this therefore remains a competitive disadvantage for rural SMEs in particular but also for the living standards of anyone living in such areas.

The comparative position of the UK with respect to other EU countries

In 2017, the European Commission (EC) reported that the UK is high in the EU rankings of countries' connectivity. It ranks 5th in terms of the percentage of households covered by fixed broadband (99.97% in 2016) and 3rd in fixed broadband take-up (87% in 2016), well above the EU average of 74%.⁷⁶ The EC Report (2017) commends the UK in being one of the few countries in the EU that has a comprehensive computing curriculum in compulsory education from the age of 5.⁷⁷

Digital skills and the use of digital tools

- According to the EC (2017), in 2016, almost 1/3 of the UK's population did not have basic digital skills.
- There has been a fall in the UK's ranking from 1st in 2013 to 3rd in 2014, in the EU for the UK's percentage of STEM graduates in the population.
- 5% of employed individuals in the UK are IT specialists, ranking 3rd in the EU.
- The UK ranked 12th in the EU in 2016 for the percentage of e-commerce done by SME's (94% of their turnover) although the number of SME's involved in selling on-line was higher than the EU average (19% compared to the EU average of 17%).

The importance of digital technology to those living and working in rural communities

Connectivity is important since a greater proportion of the rural labour force works from home (22%) than does the urban workforce (12%).⁷⁸ In 2017, Rural England and Scotland's Rural College (RESRC) conducted

⁷³ Ofcom (2017), p. 5.

⁷⁴ Ofcom (2017), p. 20.

⁷⁵ Ofcom (2017), p. 20.

⁷⁶ EC (2017), p. 3.

⁷⁷ EC (2017), p. 6.

⁷⁸ RESRC (2017), p. 4.

a survey of more than 800 rural businesses on their use of digital tools and services. Their findings suggest that:

- The most important device for rural businesses is a smartphone (82%) followed by a laptop (79%).⁷⁹
- Almost 80% believe that the use of digital tools and services is important to their future growth potential with cloud computing being seen as the biggest driver (62%), 5G mobile networks (54%), the Internet of Things (47%) and Machine Learning/Artificial Intelligence (26%). Of those who export, 80% say that the use of e-commerce is important in their trade of goods and services abroad. The top two sectors using e-commerce are retail (80%) and the accommodation & food sector (71%) and the top export destinations for rural businesses are the EU (84%) followed by the USA (45%).⁸⁰
- 62% of the businesses surveyed said that they use cloud computing for their rural business. For example, the firm Ice Robotics has harnessed “cloud computing and sensor technologies to monitor the fertility and health of cows used in dairy farming, enabling farmers to see alerts and visualisations of how their livestock are moving so they can manage their herds more productively.”⁸¹
- The benefits of digital technology use were said to be:
 1. Assisting remote working (30% of rural businesses)
 2. Improving access to customers/suppliers (29% of rural businesses)
 3. Improving business efficiency (28% of rural businesses)
 4. Improving data storage and security(25% of rural businesses) and
 5. Enabling more business flexibility (25% of rural businesses).

Some also identified benefits in business costs (16%) and profitability (19%).⁸²

- However, 52% of respondents said that they faced issues with internet reliability and speed, 30% said that they had difficulty finding external or outsourced digital connectivity support, 14% said that they had difficulty accessing appropriate external digital training for their existing workforce and 20% said that their existing workforce lacked sufficient digital skills and struggled to recruit people who had them.⁸³ The relative importance of different constraints was found to vary with business size as the main constraint for medium and large businesses was “recruiting people with the required digital skills.”⁸⁴
- “Issues raised by businesses on account of having slow or unreliable connections include reputational harm to their business, lost time or added stress experienced, an inability to work flexibly or on the move (because of poor mobile signals) and, in some cases, lost consumer sales.”⁸⁵
- Large and medium-sized businesses are more positive about digital benefits than small enterprises.

⁷⁹ RESRC (2017), p. 5.

⁸⁰ RESRC (2017), p. 2.

⁸¹ RESRC (2017), p. 3.

⁸² RESRC (2018), p. 5.

⁸³ RESRC (2017), p. 3.

⁸⁴ RESRC (2018), pp. 6-7.

⁸⁵ RESRC (2018), p. 7.

Regional Policies

iNorthumberland and Connecting Cumbria have been working with BT to connect more of their county's communities and businesses to broadband, superfast broadband and ultrafast broadband. In 2015, Northumberland County Council stated that the aim of iNorthumberland was to deliver 100% mobile coverage for voice by December 2016 and via an investment programme of almost £20M in partnership with BT, to connect 90% of the county's homes and businesses to superfast broadband by 2015.⁸⁶ They would ensure that all new developments were provided with superfast broadband services as an integral part of the provision of core utilities. By 2017, the intention was to increase fibre broadband coverage in the County to 95% of premises and wherever superfast broadband is not possible, to guarantee a minimum service delivery of 5 mbps to every property in the County."⁸⁷

Northumberland County Council has maximised digital transactions and agile working in council work. In the NCC (2015) report, they envisaged that by 2018, around 80% of interactions with the Council would be handled digitally.⁸⁸

In the NCC (2015) report, the Council said that they wished to ensure that low cost connectivity was part of tenancy contracts for social housing providers and private landlords. They were also to explore the feasibility of creating a digital academy in Northumberland to help grow and retain digital skills and talent in the County.⁸⁹

Cumbria LEP (2017) reports that "The Connecting Cumbria programme led by Cumbria County Council in partnership with BT and part funding from ERDF has made good progress it says, in introducing superfast broadband to many of Cumbria's smaller villages but has some way to go in serving more isolated rural areas."⁹⁰ It states that farmers are expected to complete payment returns on-line. Access to broadband in accommodation is also important for the visitor economy.

Policy Drivers

1. In March 2017, the UK Government confirmed that it will invest £1bn in full fibre deployment and 5G by 2020-21.⁹¹

⁸⁶ NCC (2015), p. 7.

⁸⁷ NCC (2015), p. 7.

⁸⁷ NCC (2015), p. 15.

⁸⁸ NCC (2015), p. 13.

⁸⁹ NCC (2015), p. 9.

⁹⁰ Cumbria LEP (2017), p. 16.

⁹¹ "UK Digital Strategy," DCMS, March 2017.

2. The Digital Economy Bill (2017) is the Government's attempt to ensure that Britain remains at the forefront of the 21st century economy, encouraging greater use of digital technology across the public sector.
3. The EU's objective is to ensure that every company and household has broadband access at a speed of at least 30MBs by 2020⁹².
4. Ofcom is considering new coverage obligations on network suppliers and will also be working with industry and government to identify options for improvement to the dependence of mobile networks on mains power given that 70% of all calls to the emergency services are now done on mobile networks.⁹³
5. Northumberland aims to be the most connected rural county in Britain. Since 1st April 2015, Northumberland has operated the Superconnected Cities voucher scheme which gives grants of up to £3,000 to SMEs to enable them to secure speeds of at least 30Mbps.⁹⁴
6. Northumberland's intention is to embrace digital technology and harness its capacity to increase the participation and wellbeing of people with long-term conditions, disabilities and the elderly.

Opportunities

The opportunities foreseen by industry reviews do not appear to be dependent on the EU deal on Brexit. They identify many opportunities for the sector and outline the benefits that they will bring to businesses and communities:

- Increased health and wellbeing of communities and families as digital participation increases, and products that enable independent living and expansion of tele-health are supported. Independent living will thereby be enabled/extended for the elderly and there will be a reduction in social isolation of older people by providing them with internet access and digital skills.
- The authors of the SRUC report (2017) recommend i) Better signposting to digital support by creating local directories of those who offer such services and ensure that support for connectivity, training and e-commerce is available on a single portal; ii) The creation of more digital enterprise hubs in rural towns which businesses can use or visit for better connectivity, start-up workspace, hot desk space and digital training and iii) UK businesses could do more to take advantage of digital technologies e.g. use of electronic information sharing.
- Wilson et al. (2018) estimate that if digital constraints were overcome, the increase in annual business turnover in those areas would grow by at least £15bn. Doing so, would increase GVA in rural areas by at least £12bn p.a.⁹⁵

⁹² EURACTIV (2017), p. 4.

⁹³ Ofcom (2017), p. 7.

⁹⁴ NCC (2015), p. 15.

⁹⁵ Wilson et al. (2018), p. 8.

- Encourage more small businesses to export by promoting the opportunities afforded by e-commerce. Ensure that there is smarter digital training and skills development for SME's and their employees.
- The European Agricultural Machinery Industry Association (EEMA) has stated that “adequate broadband infrastructure across the entire EU is an essential precondition to achieving a successful and inclusive digital transformation in agriculture.” EURACTV (2017) sees farmer organisations playing a greater role in encouraging the take-up of technology that supports their members.⁹⁶ It also suggests the introduction of an agricultural sustainable productivity bonus in the CAP to support green technology investments like smart farming. They argue that precision farming allows higher productivity, less pesticide use and less waste in agriculture. For example, the French fertiliser company Yara, claims that 85,000 tonnes of additional wheat production were produced in France because the farmers, with an N-tester tool were able to adjust to the nitrogen needs of the crop with a direct effect on yield, fertilisation cost and the environment. This also contributed to lower greenhouse emissions by 71,000 tonnes of CO₂.⁹⁷
- EURACTIV (2017) also argues that consumers will benefit from smart agriculture as the quality of food will be improved.⁹⁸ A report by the Scientific and Technological Options Assessment (STOA) committee of the European Parliament emphasised the environmental benefits of smart farming. The use of high-tech tools such as GPS systems, devices controlling sprayers and fertiliser distribution, and sensors will contribute to a more sustainable and measurable impact on the environment,⁹⁹ allowing the production of “more with less.”
- There will be a reduced brain-drain from rural areas as homes and businesses achieve greater connectivity.
- The *Cumbria Rural and Visitor Economy Growth Plan 2017* recognises “an opportunity for Cumbria to be a test bed for the application of new technologies in rural areas and sees it as a priority to build the County as a location for 21st century businesses.”¹⁰⁰
- Cumbria LEP (2017) sees an opportunity for the County to capitalise on the roll-out of superfast broadband and its lifestyle offer to develop the “Rockies phenomenon” especially in the south of the county.¹⁰¹ i.e. attract digital and creative firms to locate to Cumbria.
- Northumberland County Council intends to increase the number of public access points to broadband (currently 300 in Northumberland in 2014) and to ensure that low cost connectivity is part of tenancy contracts for social housing providers and private landlords. They will explore the feasibility of

⁹⁶ EURACTIV (2017), p. 8.

⁹⁷ EURACTIV (2017), p. 14.

⁹⁸ EURACTIV (2017), p. 15.

⁹⁹ EURACTIV (2017), pp. 15-16.

¹⁰⁰ Cumbria LEP (2017), p. 3.

¹⁰¹ Cumbria LEP (2017), pp. 31-2.

creating a digital academy in Northumberland to help grow and retain digital skills and talent in the County.¹⁰²

- Wilson et al (2018) suggest that there be more rural targeting of existing digital policies and strategies e.g. design the National Productivity Investment Fund so that it targets rural areas; have a dedicated rural strand within the Government's proposed Shared Prosperity Fund, capable of supporting digital skills and growth.¹⁰³

Challenges

The sector reviews foresee a number of challenges for the sector:

1. The Cumbria LEP (2017) recognises the technological driver as being a challenge to the tourism sector in Cumbria since the County needs to remain competitive vis-a-vis other tourist destinations in terms of demand for connectivity and speeds obtained by staying visitors.
2. The ability of rural businesses in accessing digital training.
3. There is a lack of digital skills in the current work force and a struggle to recruit those who have them (Cumbria).

¹⁰² NCC (2015), p. 9.

¹⁰³ Wilson et al. (2018), p. 9.

5.6 The Environmental and Renewable Energy Sector

Sector reviews emphasise the importance of the Natural Environment and Renewable Energy in the national economy:

- The Climate Change Act, passed in 2008, committed the UK to reducing greenhouse emissions by at least 80% by 2050 when compared to 1990 levels and since 1990, the UK has cut emissions by 42% while the economy has grown by two thirds.¹⁰⁴ Five-year caps on greenhouse gas emissions termed “Carbon Budgets” are set and so far, the UK has outperformed these. Notable signs of progress have been as follows:
 - i. In 2016, 47% of the UK’s electricity came from low carbon sources around double the level in 2010.
 - ii. The UK has the largest offshore wind capacity in the world.
 - iii. Average household energy consumption has fallen by 17% since 1990.
 - iv. England recycles almost four times as much as it did in the year 2000 in local authority collected waste.¹⁰⁵
- Thanks to the UK’s world-leading expertise in technologies such as offshore wind, power electronics for low carbon vehicles and electric motors and global leadership in green finance, the UK is successfully exporting goods and services around the world. For example, one in five electric vehicles driven in Europe has come from the UK. Hence, there are more than 430,000 jobs in low carbon businesses and their supply chains in the UK.¹⁰⁶ The UK also leads on green finance.
- However, it is argued that the environmental effects of the Common Agricultural Policy have been detrimental to the UK natural environment with, for example, there being a loss of hedgerows, bees, birds and biodiversity.

The Importance of the Renewable Energy Sector to the region is also highlighted in the local strategy papers:

- The Northumberland Economic Strategy (2015) records the highest growth in numbers employed to be in the sector “Mining, quarrying and utilities,” up 67% in the period 2009-13 although the sector still accounts for only 2% of total employment.¹⁰⁷ There was even greater growth (77.5%) in the sector in the Scottish Borders but decline in the numbers employed in the sector in Cumbria (11% fall).¹⁰⁸
- In 2011, there were 26 small hydro schemes in Cumbria and 23 in Dumfries & Galloway. In 2012, the largest off-shore windfarm in the world, with 102 turbines, was opened off the coast of Cumbria at Walney Windpark with the ability to generate enough sustainable electricity to power over 400,000

¹⁰⁴ HM Government (2017), p. 5.

¹⁰⁵ HM Government (2017), p. 6.

¹⁰⁶ HM Government (2017), p. 7.

¹⁰⁷ Northumberland County Council (2015), pp. 17-18.

¹⁰⁸ Northumberland County Council (2015), p. 20.

homes. It was announced on 24th April 2018 by Danish developer Ørsted that the last of 87 new windmills have been installed at the Walney Extension and that these are expected to be operational later this year.¹⁰⁹

- The North East Enterprise Zone, centred on Blyth, focuses on energy sectors and Blyth hosts the National Offshore Renewable Energy Catapult Centre.¹¹⁰
- West Cumbria hosts the National Nuclear Laboratory and the Dalton Nuclear Institute at Westlakes Science Park. The Dalton Cumbrian Facility is the state-of-the-art research base of The University of Manchester's Dalton Nuclear Institute, part of the National Nuclear User Facility which provides academia and industry with the opportunity to carry out high-end research in radiation science and nuclear engineering decommissioning.

Importance of the Natural Environment to the Region

All four of the Border counties stress the importance of the natural environment in their economic strategies as this plays a fundamental part in the attraction of tourists to the region.

The Northern Upland Chain Local Nature Partnership, established in 2012, includes over 50 organisations and covers four nationally-designated landscapes: Northumberland National Park, North Pennines AONB, Yorkshire Dales National Park, Nidderdale AONB and Forest of Bowland AONB. The Partnership is calling on the Government, LEPs, environmental agencies and the farming community to work together to support High Nature Value Farming as it feels that the latter is the best way of maintaining the region's valuable landscapes, wildlife, flora and fauna.

Policy Drivers

- In October 2017, the UK Government published *The Clean Growth Strategy* in which the Prime Minister stated that “economic growth has to go hand-in-hand with greater protection for our forests and beaches, clean air and places of outstanding natural beauty.”¹¹¹ It was also stated that “achieving clean growth, while ensuring an affordable energy supply for businesses and consumers is at the heart of the UK's Industrial Strategy.”¹¹² Hence, Government intends to put emissions reductions and land stewardship at the heart of the post-EU agricultural support policy. In his speech on 17th February 2018, the Secretary of State for the Environment, Michael Gove (2018) stated that he wanted “the new system to deliver benefits such as improved air and soil quality; increased biodiversity; climate change mitigation and adaptation; and cultural benefits that improve our mental and physical wellbeing while protecting our historic environment.”¹¹³ He believes that the new post-Brexit environmental land management system that will be adopted “will help us to deliver our manifesto

¹⁰⁹ NW Evening Mail (2018).

¹¹⁰ Northumberland County Council (2015), p. 74.

¹¹¹ Her Majesty's Government (2017), p. 2.

¹¹² Her Majesty's Government (2017), p. 3.

¹¹³ Gove (2018b), p. 8.

commitment to be the first generation to leave the environment in a better state than we inherited it.”¹¹⁴

- The Government has stated that “Leaving the EU will not affect our statutory commitments under our own domestic Climate Change Act and indeed our domestic binding emissions targets are more ambitious than those set by EU legislation.”¹¹⁵ As stated above, The Climate Change Act (2008) commits the UK to reducing greenhouse gas emissions by at least 80% by 2050 compared to 1990 levels.
- The Government states that the UK low carbon economy could grow by an estimated 11% p.a. between 2015 and 2030, four times faster than the rest of the economy and could deliver between £60bn and £170bn of export sales and services by 2030.¹¹⁶ The Clean Growth Strategy will see Government invest over £2.5bn in support of low carbon innovation from 2015 to 2021. The National Productivity Investment Fund will provide an additional £4.7bn and an extra £2bn p.a. by 2020-21 on UK science, research and innovation. This strategy will also “enhance the UK’s energy security by delivering a more diverse and reliable energy mix.”¹¹⁷
- The Energy sector is identified in all 4 Border authorities as a sector priority.

Opportunities

In the sector review and policy documents, the UK’s leaving the CAP is seen as an opportunity to remedy some of the environmental damage to which the CAP has been argued to give rise. It is the Government’s vision to implement a new environmental land management system. As direct payments to farmers are phased out during the Brexit two-year agricultural transition period from March 2019, it is proposed that they will be replaced with a new system wherein farmers will be paid “public money for public goods” which will deliver better environmental outcomes.¹¹⁸ In the meantime, DEFRA intends to simplify applications for farmers wishing to enter existing schemes that provide environmental benefits such as Countryside Stewardship.

The following opportunities are also foreseen:

- There is potential for growth in wind power – the Scottish Borders has an abundance of suitable sites. Also, offshore wind, oil and gas activity are a key part of the Northumberland offer. There is also growth potential in hydro power.
- The Cumbria LEP has considered the Solway Firth as a source of estuarine tidal power.

¹¹⁴ Gove (2018b), p. 8.

¹¹⁵ Her Majesty’s Government (2017), p. 10.

¹¹⁶ Her Majesty’s Government (2017), p. 8.

¹¹⁷ Her Majesty’s Government (2017), p. 11.

¹¹⁸ This is the Government’s intention set out in a consultation document on the future of English farming and the environment launched by the Environment Secretary on 17th February 2018, see Gove (2018b).

- The Government intends to improve the energy efficiency of homes and offer all households the opportunity to have a smart meter by 2020. As part of the Clean Growth Strategy (2017), it intends to support £3.6bn of investment to upgrade around one million homes. It will strengthen energy performance standards for new and existing homes under Building Regulations and also consult on how social housing can meet similar standards. It intends to improve standards on the 1.2 million new boilers that are installed every year in England.
- The Government will spend £4.5bn to support innovative low carbon heat technologies in homes and businesses between 2016 and 2021 and during the 2020's, it will phase out the installation of high carbon forms of fossil fuel heating. It states intentions to: phase out the use of unabated coal to produce electricity by 2025; improve the route to market for renewable technologies; generate competition between suppliers of electricity; and deliver new nuclear power.¹¹⁹
- The Government is to introduce a voluntary public sector target of a 30% reduction in carbon emissions by 2020-21 and will report annually on UK performance in delivering GDP growth and reduced emissions through an "Emissions Intensity ratio."
- The Government wishes to explore new and innovative ways to manage emissions from landfill.
- Nuclear new build in Cumbria could provide construction jobs for the County.
- The £15 million Walney Extension Community Fund, launched in 2016, gives approximately £600,000 per annum to community and environmental projects located in coastal communities near to the Walney Extension offshore wind farm and will do so each year for the expected 25-year lifetime of the wind farm.¹²⁰
- Establish a new network of forests in England and increase the amount of UK timber used in construction.

Over the Medium and Long Term, it is stated in the Government's Clean Growth Strategy (2017) that it wishes to accelerate the shift to low carbon clean investment transport via a number of measures:

- i. End the sale of new petrol and diesel cars and vans by 2040;
- ii. Spend £1bn supporting the take-up of ultra-low emission vehicles (ULEV);
- iii. Develop one of the best electric vehicle charging networks in the world;
- iv. Position the UK at the forefront of Connected and Autonomous vehicle technologies and ensure that the UK leads the world in design, development and manufacture of electric batteries;
- v. Accelerate the uptake of low emission taxis and buses. An example of sustainable transport is being trialled in the Lake District National Park on 27-28th April 2018 when the public will be given the opportunity to try out a driverless "pod." These are electric self-driving vehicles which could possibly be used in the Lake District in the future to transport people along specific routes in the National Park in an environmentally friendly way.¹²¹

¹¹⁹ Her Majesty's Government (2017).

¹²⁰ NW Evening Mail (2018).

¹²¹ In Cumbria (2018a), p. 1.

- vi. Work with industry as they develop an Automotive Sector Deal to accelerate the transition to zero emission vehicles;
- vii. Invest £1.2bn in making cycling and walking the natural choice for shorter journeys;
- viii. Work on shifting more freight from road to rail.

It is also stated in the Government's Clean Growth Strategy (2017) that it wishes the UK to develop world- leading Green Finance capabilities. To enable this, it suggests:

- i. Setting up a Green Finance Taskforce;
- ii. Developing voluntary green sustainable finance management standards;
- iii. Providing up to £20 million for a clean technology early stage investment fund; and
- iv. Developing green mortgage products.

The Government wishes to improve business and industry efficiency so that their energy productivity is increased by at least 20% by 2030. It recommends:

- i. the formation of an Industrial Energy Efficiency Scheme to help large companies to install measures to cut their energy use and bills;
- ii. that the energy efficiency of new and existing commercial buildings be improved;
- iii. that SMEs be given improved energy information and advice;
- iv. that requirements for businesses to report energy use should be simplified and;
- v. support for the recycling of heat to reduce business energy bills;
- vi. the publishing of joint industrial decarbonisation and energy efficiency action plans with 7 of the most energy intensive industrial sectors.

The Government would like to see all fuel-poor homes upgraded to EPC Band C by 2030.

The Government would like the UK to work towards zero avoidable waste associated with the extraction, use and disposal of our resources by 2050.

There could be a large expansion of jobs in Cumbria based on new build in nuclear on the West coast with consequent growth in the accommodation sector, housing construction, service sectors and retail.

Challenges

Sector reviews and strategy documents envisage a number of challenges for the renewable energy sector:

1. It remains to be seen how successful the Government will be in implementing a new post-Brexit scheme that bases payments to farmers on their delivery of environmental as opposed to agricultural goods, given the potential for conflict with WTO rules.
2. There is a fear that there will be a lack of supply of skilled workers needed for the expansion of the economy in West Cumbria.
3. Local opposition is a challenge to more windfarms in the Scottish Borders and Dumfries and Galloway.

5.7 Manufacturing

As noted earlier in this document, it is often overlooked that the rural North hosts a significant amount of manufacturing activity that is dispersed across free-standing towns within predominantly rural areas. This can be illustrated using official data for employment (BRES data accessed via NOMIS) which indicates that, despite recent decline, manufacturing is a major employer in Northumberland and Cumbria. It is significant to note that this is also the case for Dumfries and Galloway and Scottish Borders. In 2017:

- 39,000 or 16.9% of employees worked in the manufacturing sector in Cumbria;
- 11,000 or 10.9% of employees worked in the manufacturing sector in Northumberland;
- 6,000 or 10.5% of employees worked in the manufacturing sector in D&G;
- 5,000 or 12.5% of employees worked in the manufacturing sector in the Scottish Borders;
- This is compared to just 8.1% of employees in GB as a whole.¹²²

The IPPR North's 2017 report on 'Forgotten Opportunities' argues that Advanced Manufacturing tends to account for a similar proportion of GVA in both rural and urban areas. "A range of factors, including land availability, proximity to transport links, and the opportunity to attract skilled workers, make the countryside a good place for manufacturing businesses."¹²³

Furthermore, manufacturing accounts for 45% of UK exports and 57.5% of the UK's manufacturing exports currently go to the EU.¹²⁴

Drivers

Recently, the fall in the value of sterling has seen a surge in competitiveness for both EU and non-EU trade, benefitting manufacturers. However, the downside of the weaker pound is an increase in unit costs and a concern that this will need to be passed on to consumers.¹²⁵

Sector reports emphasise that the nature of the deal that is determined with the EU will have a profound effect on trade, investment and incomes and thereby have both direct and indirect effects on manufacturing. The CBI (2016) undertook a consultation with companies of all sizes and sectors and with representatives of dozens of trade associations in order to gauge how businesses felt about their post-Brexit future and in what ways they were preparing for the consequences. Its intention was to report on a sector-by-sector basis and to use this information to guide government and industry to get the best deal

¹²² Source: NOMIS

¹²³ IPPR North (2017a), p. 53.

¹²⁴ CBI (2016), p. 88.

¹²⁵ CBI (2016), p. 88.

for the UK on leaving the EU. It believes that there are six principles which should guide the UK's negotiations with the EU:

1. A barrier-free relationship with our largest, closest and most important trading partner;
2. A clear plan for regulation that gives certainty in the short-term, and in the long-term balances influence, access and opportunity;
3. A migration system which allows businesses to access the skills and labour they need to deliver growth;
4. A renewed focus on global economic relationships, with the business community at their heart;
5. An approach that protects the social and economic benefits of EU funding;
6. A smooth exit from the EU, avoiding a "cliff-edge" that causes disruption.

Its findings with regards to the Manufacturing Sector were that:

1. Low barriers and long-term regulatory cooperation between the UK and the EU was important to firms.
2. Companies have concerns about continued access to workers at all levels of skills and about flexible movement.
3. Partnership between international education institutions and UK manufacturers was important in enhancing innovation in the sector.

Clearly, a Brexit deal that jeopardised any of these industry drivers would affect both the demand and supply sides of the sector in the UK. If a preferential trade arrangement were not agreed between the UK and EU, the EU would be legally obliged to apply the same tariff rate to UK goods as it does to those from any other third country.¹²⁶ These tariffs differ by product with, for example, a 12% tariff on clothing, a tariff of over 3% on electrical machinery and chemicals and an average EU tariff of 22.3% on food and drink products. This would put UK suppliers at a competitive disadvantage when trying to sell to the EU. In addition, if UK imports from the EU attracted tariffs, this would push up the cost of imports such as energy, vehicles and machinery and lead to supply chain costs increasing for the sector.

If non-tariff barriers to trade such as rules of origin declarations, quotas, labelling and packaging requirements were to increase, this would create cost and delay and might also upset just-in-time deliveries.¹²⁷ In this regard, it is envisaged that SMEs might turn to large companies to facilitate EU trade

¹²⁶ CBI (2016), p. 13.

¹²⁷ CBI (2016), p. 14.

given the expertise that may be needed and this would disadvantage rural areas more given their lack of large companies.

The CBI is calling for the UK government to engage in wide consultation with the entire UK economy when considering its approach to current EU regulations, directives and standards as these affect not just immediate sectors, for example, chemicals and plastics but those which they also supply.

The chemicals, plastic and technology industries are also requesting assurances that the Great Repeal Bill will be successful in its aim of comprehensively “carrying over” legislation on regulations that stem from EU or cross-European bodies. If this were not to be the outcome, then again, smaller firms could be disadvantaged by the need to understand and incorporate new legislation.¹²⁸

Challenges

The CBI (2016) has identified a number of challenges to the Manufacturing sector, as follows:

- The CBI (2016) reports that “with the UK’s employment levels at a record high at 74.5% over a third of businesses are not confident about filling their high-skilled jobs in future.”¹²⁹ However, nearly 2/3 of manufacturing firms in the CBI survey saw “challenges in recruiting the skills they need in the years ahead.”¹³⁰ Given that industry already tends to face recruitment problems in the rural North, this would only be exacerbated if labour were in further short supply and attracted to the higher-paying factories in urban areas. In particular, for rural areas, the biggest threat might be the shortage of workers with the right skills.
- Also, difficulties in recruiting EU labour may affect the transport and logistics sector which would have a negative effect on manufacturing industry that required goods to be moved from one location to another.
- An easy system for visitor travel and freedom to move employees to work in other EU countries and vice versa may be valued by some manufacturing companies who rely on inter-company transfers in their maintenance of their global networks. The CBI (2016) reports that “if UK engineers cannot move quickly from the UK to the EU, talent pools will be developed there and the UK capability may be affected.”¹³¹

Opportunities

Sector reviews identify the following potential opportunities for the manufacturing sector:

- Manufacturing relies on good digital and physical connectivity. The IPPR recommends “ruralised” plans be drawn up as part of rural devolution deals for the contribution of rural areas to national

¹²⁸ See Peck, F., Mulvey, G., Jackson, K. and Jackson, J. (2012), p. 67.

¹²⁹ CBI (2016), p. 22.

¹³⁰ CBI (2016), p. 89.

¹³¹ CBI (2016), p. 89.

sectors such as advanced manufacturing, digital and tourism.¹³² It believes that “the potential of rural areas as centres of excellence in advanced manufacturing and high-tech fields (for example, energy) should be part of a place-based industrial strategy.”¹³³

- Growth and Proximity to energy generation (renewable energy) may be an additional draw for manufacturing firms to rural areas.
- In Cumbria, the Cumbria Manufacturing Service aims to help manufacturing SMEs to streamline their processes, drive up production capacity, innovate, improve business systems and access new markets. The Manufacturing Adviser helps businesses to apply for grants available under the ERDF.¹³⁴ The question is, will these grants be replaced by the UK Government when no longer available from the EU?
- New international trade agreements with countries outside the EU are seen as a long-term ambition since i) until the UK has formally exited the EU on 29th March 2019 it cannot launch formal trade negotiations with any third country and ii) all future trading relationships will depend on formal acceptance of the UK’s schedules at the WTO. The process of submitting new UK and EU schedules to the rest of the WTO for approval has not yet begun.
- At present, EU funding streams are targeted at areas of economic and social deprivation and need. Some sectors also receive significant amounts, particularly in the fields of innovation, infrastructure and the rural economy. Unless these funds are replaced by UK government funds going to the same causes and regions, the rural North may suffer in terms of new infrastructure, investment in innovation and skills. A decline in these components themselves would have repercussions for manufacturing. The CBI (2016) is calling for a “funding roadmap” for areas currently covered by EU funds and grants to be drawn and also for government to set a target for joint public and private R&D expenditure to reach 3% by 2025.¹³⁵

¹³² IPPR (2017), p. 61.

¹³³ IPPR (2017), p. 62.

¹³⁴ Cumbria Manufacturing Service (2018), p. 1.

¹³⁵ CBI (2016), p. 32.

5.8 Sectors in the rural North– Optimistic and Pessimistic Outcomes

Table 3 draws together the views expressed in the policy documents reviewed above regarding possible outcomes for these sectors following BREXIT. Continued uncertainty surrounding the characteristics of Brexit mean that speculation about outcomes involves a wide range of opinion. While most sector reviews address the pessimistic outcomes there are some expressions of optimism, though based on specific conditions and outcomes from negotiations.

In the farm sector, there appears to be recognition that aspects of CAP do not benefit the sector in the North of England in terms of promoting and supporting innovation in farming practice. There is recognition that, with the right incentives and policy environment, some farms may benefit from BREXIT by becoming test-beds for new models of farming based on investment in ICT and a new phase of mechanisation. Others might benefit through adoption of de-intensification models and, under appropriate policy steer, maintain viable business through production based on environmental goods and further phases of diversification. These policy commentaries, however, also recognise high risk for the farm sector following a hard Brexit that closes off EU markets for farm produce and allows imports of cheaper foodstuffs from non-EU countries. In these circumstances, there is less confidence from commentators that a new UK farm policy could create conditions within which the farm-based economy could thrive in the rural North.

Industry reports, strategy and policy documents reveal little impact of Brexit on the digital sector. The main concern is that there still exists a rural-urban divide in terms of broadband and mobile connectivity. This hinders business growth in the rural economy and puts, for example, the accommodation sector in the National Parks at a distinct disadvantage in this “connected age.” However, the Northumberland County Council (2015) and Cumbria LEP (2017) strategy documents look forward to the many benefits that digital take-up could have for the populations of these counties such as tele-health, reduction of social isolation and extension of independent living for the elderly. The counties should benefit economically from creative businesses taking advantage of digital roll-out and the stemming of brain drain of people leaving the rural areas.

The Government is placing great emphasis on the growth of the renewable energy and environment sector in its pursuance of an environmentally-friendly agenda aimed at helping the UK “to be the first generation to leave the environment in a better state than when we inherited it.”¹³⁶ Brexit is not foreseen

¹³⁶ Gove (2018b), p. 8.

by any commentators to give rise to negative consequences in the sector. Rather, it is seen as an opportunity for the UK to adopt a more environmentally-friendly farming industry and to spur farmers to adopt smart technology thereby reducing the cost of food and input costs.

In the fishing industry, there is a hope that the UK's departure from the EU will bring sovereignty over UK waters up to 200miles offshore and that this will reverse the sense of "unfairness" felt by UK fishermen of the current situation where EU fleets take four times as much out of UK coastal waters as the UK takes out of EU waters. However, industry reports and statistics obtained from NOMIS indicate that the fishing industry is of relatively little significance to the North's economies in terms of employment provided. The possibility of post-Brexit tariffs on UK fish exports and the loss of EU collective bargaining power that the UK would have in negotiations with other countries may outweigh the advantages of the regaining of sovereignty over UK waters.

Industry reports recognise that the forestry sector is heavily dependent on changes that might occur as a result of Brexit. At present, UK forests are subject to EU regulations covering environmental impacts, biosecurity and pest control. If UK regulations are put in force to replace these, it is thought that they may be more relaxed with regard both to the felling and replanting of trees. This is because at present about 82% of wood consumption in the UK is imported and Brexit might lead to tariffs on these imports which makes domestic production more viable. Such an impact would be favourable to the economies of rural areas. However, monies for woodland management currently emanate from the European Agricultural Fund for Rural Development and these would also be required to be replaced by the UK government.

Despite the Border counties being predominantly rural in nature, the Manufacturing sector is still seen to be very important, employing between 10.5% and 16.9% of workers in these counties. Brexit is likely to have a profound impact on trade, investment and incomes and therefore will have both direct and indirect effects on manufacturing. The two biggest threats to the sector recognised in the literature are i) a shortage of skilled workers and ii) the possibility of tariffs being imposed on British exports and imports of products and raw materials. Both of these factors would raise costs and thereby reduce the UK's international competitiveness. The reduction in the value of sterling has benefitted manufacturers recently when exporting their goods. If there is a degree of import-substitution by manufacturers following Brexit, this could potentially be good for rural areas.

In the tourism sector, continued growth is expected given the rise in incomes, demand for leisure and the fall in sterling. However, there is real concern that the shortage of labour already being experienced in the hospitality sector may be exacerbated both by the Brexit negotiations and the “final deal.” The sector is quite heavily dependent on labour from the EU, especially in the Lake District and uncertainty over EU workers’ ability to stay in the UK after Brexit, is having a detrimental effect. This factor and the rise in costs of imported food and hospitality products could lead to some hotel closures. Industry strategic bodies are poised to foster tourism in the Border counties taking advantage of the beautiful natural landscapes; rich heritage; food and drink specialisms and outdoor sports opportunities that exist.

Table 3: Optimistic and Pessimistic Sectoral Outcomes from Brexit

Sector	Optimistic outcome for rural areas	Pessimistic outcome for rural areas
Agriculture	<p>CAP has stifled innovation due to effect of support payments. Coming out of CAP may stimulate innovation and prompt many farms to change practices and invest in technology – precision farming. Farm productivity may be enhanced significantly.</p> <p>Rural areas of the North could become “test beds” for new models of farming based on environmental goods and/or smart technologies.</p> <p>Policy innovation to preserve and improve “natural capital” is made possible by withdrawing from CAP. Upland farming may have opportunity to de-intensify and diversify successfully.</p>	<p>Farms with low productivity might experience barriers to investment and many farms could fail.</p> <p>Hard Brexit would reduce export of lamb to Europe. Imports of lamb (NZ) and beef (Brazil, USA) could increase and prices fall in the UK. Puts added pressure on UK farmers, especially in marginal upland areas.</p> <p>New farm policy for the UK might fail to foster innovation and diversification.</p> <p>UK government could experience difficulty in negotiating new farm policy with WTO</p>
Digital	<p>Rural areas could capitalise on the successful roll-out of superfast broadband.</p> <p>Addressing the digital divide might become a priority for policy and developers to facilitate smart farming and technological advances in farming, rural areas receive further investment in broadband infrastructure.</p> <p>Further investment in broadband and mobile connectivity could stimulate business start-up and small business growth in rural areas (e.g. tourism, digital, creative sectors).</p>	<p>Demand for digital services from smart farming in rural areas might not materialise due to policy and market uncertainties</p> <p>Businesses in rural areas could be held back due to lack of digital skills base and local education and training capacity</p> <p>Due to policy uncertainties and commercial priorities of infrastructure providers, new investment in broadband infrastructure in rural areas might fail to keep pace with</p>

	<p>Rural area of the north could become test bed for new technologies applied to health-care diagnosis and delivery.</p> <p>To overcome negative effects of BREXIT, government might prioritise investment in digital enterprise hubs in rural areas through Borderlands Growth Deal, Productivity Investment Fund and Shared Prosperity Fund.</p>	<p>urban areas and a digital divide could be reproduced at a higher level.</p> <p>Productivity Investment Fund and Shared Prosperity Fund might not be subject to rural targeting of digital infrastructure investment.</p>
Environmental and Renewable Energy	<p>New government policy has capacity to deliver better environmental outcomes from farming while also sustaining viable businesses in the sector.</p> <p>Rural areas of the North could capitalise on natural advantages for the generation of wind and hydro-power.</p> <p>Government green growth strategy might lead to investment in sustainable sources of domestic timber to supply the UK construction industry.</p>	<p>The post-Brexit farm policy may not succeed in providing a viable basis for sustainable farming. There may be unintended negative consequences for rural areas and upland environments.</p> <p>Communities may respond negatively to plans to expand windfarms in rural areas.</p>
Fishing	<p>Following the current agreed transition arrangements (21 months from March 2019), the UK plans to withdraw from Common Fisheries Policy and assume exclusive access to waters up to 200 miles.</p> <p>The UK would then be in a position to enter negotiations with other countries to trade access rights to different waters.</p> <p>Agreement could be reached with the EU over conditions for fish exports.</p>	<p>The EU might insist on status quo extended beyond the current transition agreement.</p> <p>The UK might not be able to enter negotiations with third countries due to EU restrictions necessary to sustain export trade to Europe.</p>
Forestry	<p>The Brexit negotiations could lead to restrictions on imports of wood and wood products from the EU. This could stimulate domestic production and opportunity for innovation in wood products for the construction industry.</p> <p>Withdrawal from the CAP and the European Agricultural Fund for Rural Development could create an opportunity for UK policy innovation in relation to providing support for small-scale forestry businesses in rural areas.</p>	<p>Withdrawal from the CAP will mean loss of funding opportunity for SMEs in the forestry sector currently obtained from LEADER and EAFRD. It is not clear how this support will be replaced or replicated.</p> <p>Increased demand for domestic timber may exacerbate an existing problem with low rates of forest planting.</p> <p>Public funding for woodland management may decline under the new farm policy for the UK.</p>

<p>Manufacturing</p>	<p>In the short term, manufacturing in rural areas could benefit from exports both to the EU and non-EU countries due to the fall in the value of sterling. Longer term, there could be benefits if the UK succeeds in negotiating a beneficial trade deal.</p> <p>The UK government seems committed to supporting manufacturing growth in general and in rural areas. Government could prioritise the skills and labour needs of industry dispersed across rural areas through immigration policy.</p> <p>New international trade agreements with non-EU countries might be agreed.</p> <p>Growth and proximity to energy generation (renewable energy) attracts manufacturing firms to rural areas.</p>	<p>A preferential trade agreement might not be agreed with the EU and EU applies the same tariff to UK goods as it does on those from any other third country.</p> <p>Manufacturing in rural areas shares the same difficulties as those in cities with regard to recruiting labour and cost and delays at borders. UK transport & logistics sector could experience increased cost which feed into supply chains across manufacturing.</p> <p>Current EU funding ceases and is not replaced by sufficient funds from the UK government so that innovation and infrastructure in the rural economy is not maintained. Government continues to prioritise North Cities for larger scale projects.</p> <p>Investment in communications infrastructure in rural areas may fail to keep pace, making rural manufacturing less competitive.</p>
<p>Tourism</p>	<p>Travel to and from the EU is not impaired and the UK tourism industry continues to grow. Both inbound and domestic tourism continue to flourish partly due to the relatively low value of sterling.</p> <p>Investment in improved marketing for the rural North and national parks in particular could compensate for any negative Brexit effects.</p> <p>The opening of Carlisle Airport to passenger traffic in 2019 and possibility of abolition of Air Passenger Duty could bring more tourists to the area.</p> <p>The Government's plans for a more environmentally-friendly farming structure may provide new opportunities for diversification into tourism.</p>	<p>New Immigration restrictions could give rise to a shortage of skilled workers to fill vacancies in the hospitality sector.</p> <p>A shortage of labour, increased wages and increased cost of imports may cause some hotels and B&Bs to close.</p> <p>ESIF and ERDF moneys which currently supports much coastal and rural tourism development may not be replaced to the same degree by the UK government.</p> <p>The lack of full digital connectivity in rural areas may reduce the attractiveness for tourists of staying in rural accommodation.</p>

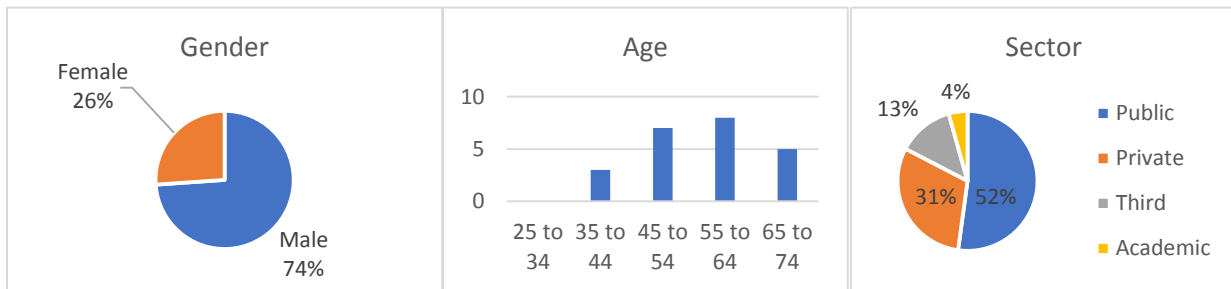
Source: Authors' analysis of Sector Reviews and Policy Documents

This analysis has considered the views of specialists and policymakers on the possible effects of Brexit on economic sectors that form the backbone of the economy of the rural North. It is evident in this analysis that while the threats are very real, the opportunities are highly dependent on negotiations and circumstances surrounding the withdrawal from the EU. The analysis also reveals that the outcomes for one sector will impinge on others and cannot in reality be considered separately. The impacts, for instance, on land-based activities such as farming, forestry, accommodation and food are, to a considerable degree, interdependent. This issue will be considered again in constructing the scenarios that emerge from the Delphi survey process.

6. The results of the Delphi Panel

As outlined in the previous section, the Delphi Panel consisted of 150 expert stakeholders drawn from across the region and from various sectors of the economy and society. 26 people completed (*a response rate of 18%*) the first round of the survey which gave the detailed description of what they thought were the key drivers for the future. 16 people completed the second round of the survey (*a response rate of 11%*) and indicated which drivers they thought were most important and how the drivers related to each other. These response rates are not atypical in a Delphi Method survey that is quite demanding on the time of participants and the structure of response has been examined to check for bias in response. Figure 5 shows the profile of the expert panel in terms of its gender and age. The panel was skewed in favour of male members with only 26% of the respondents being female. The age profile of the expert panel was skewed to the slightly older end of the spectrum which perhaps reflects the seniority and experience of the panel members.

Figure 5: Expert Panel characteristics for Round 1



Lastly, the panel was slightly over-represented by people from the public sector, accounting for just over half of the respondents. Around a third of respondents were from the private sector and one 5th from the not-for-profit & community sector. A number of respondents did highlight the fact that they could be said to be representing more than one sector as they held a number of roles in different organisations. The characteristics of this response need to be taken into account when interpreting the findings.

Results of Round 1

In round one, members of the expert panel were asked to outline what they felt would be the key drivers for change in the next 20 years. The drivers were related to three broad themes: *the economy; society and the environment* and the *environment*. There were also questions relating to 10 sectors of importance to the rural north of England and what the expert panel felt were the key drivers for change in each of

these sectors. The results of the survey were then collected and themes identified. A full list of the drivers for each theme and sector is included in Appendix 2 of this report. By conducting a thematic analysis of the responses it was possible to link similar drivers into broader themes for change.

From this analysis, a long list of 19 drivers for change was identified:

1. The financial pressures on rural services: Schools, health and elderly care etc.
2. Demographic change and the ageing rural population
3. Rural labour markets and access to a workforce with suitable skills
4. Availability and affordability of rural housing
5. Transport infrastructure in rural areas and between rural and urban areas
6. Energy markets and the cost and availability of energy in all forms.
7. The development of digital and information and communication technology. The '4th Industrial revolution'.
8. The development of a new rural policy and support framework following the UK's withdrawal from the Common Agricultural Policy.
9. Changes to grant and support mechanisms, LEADER ERDF etc.
10. Changes to international trade and its effects on the goods and services produced in the rural economy.
11. Changes to national supply chains and markets for both inputs (raw materials etc) and outputs from the rural economy.
12. Moves to become more Sustainable and avoid or mitigate environmental pressures.
13. The UK policy and governance structure following Brexit, i.e. devolution, localism and popular political concerns (eg. rewilding or the ban on plastics).
14. Changes to land values and the mechanisms by which land is valued. The value of public goods or ecosystem services for example. The impact that this has on land ownership.
15. Education and training in rural areas for the rural economy
16. Availability of suitable rural commercial premises
17. Rural connectivity. The availability of high speed broadband and 4G or 5G mobile phone connectivity.
18. An uncertain relationship between England and Scotland creating uncertainty in both physical and political/economic/social links between the NE and Scotland
19. An uncertain relationship between the regions within the North of England creating uncertainty in both physical and political/economic/social aspects of the rural North.

There was some indication from round one of the survey as to which drivers the expert panel felt were most important in the frequency with which they were suggested. However, a more robust way of understanding the relative importance of the drivers was used in Round 2 of the Delphi Survey.

Sector Drivers for change:

As well as the overarching drivers for change, the expert panel were asked to highlight specific drivers for change in key sectors important to the future of the rural north of England. These sectors were: Farming and Primary Production; Tourism; Manufacturing and Digital and Creative industry.

Farming and Primary Production

The most important driver for change highlighted by the expert panel was the access to markets following Brexit. This was closely followed by concerns about the replacement for the Common Agricultural Policy and any new regime of subsidies and supports. The drivers relating to access to markets related to both local markets: 'market prices' and wider international markets. In particular, access to EU markets and the opening up of UK markets to other low-cost producers such as the United States, Australia and New Zealand. The knock-on effect of this uncertainty on the food supply chain was also highlighted. In particular, one respondent highlighted the need to convert local supply chains to national ones to perhaps take advantage of the opportunities offered by Brexit. One consequence of any disruption to these supply chains could be an increase in the cost of food in super markets. This could have a negative reputational impact on the agricultural sector as this could be perceived to be profiteering at a time of national disruption even though it may not be a deliberate consequence of Brexit. This could further increase tension between the agricultural community and the rest of the country at a time when the agricultural community will be very vulnerable to external shocks.

Two further drivers which were identified were the impact of automation and technological developments and climate change and the environment. These were mentioned half as many times as the first two drivers. The main reason given for the importance of technology was its impact on employment. Most experts who highlighted this did so in relation to its impact on the employment structure of the agricultural sector. This can have both positive impacts, i.e. as a replacement for the loss of access to the EU labour market but also in its consequential impact on rural communities. The responses which cited the environment and climate change as an important driver did so in relation to a variety of impacts. One impact was the move to decarbonise agriculture. So far agriculture has not been the focus of attempts to decarbonise the economy but as more of the low hanging fruit is tackled, attention will turn to agriculture. This will likely have an impact on cultivation and stock rearing methods as well as things such as direct inputs. One expert highlighted the need for a move to 'sustainable intensification' in agricultural production. This would be the ideal ambition for agriculture but would involve a significant investment in technology and research to achieve.

Other drivers - which were only highlighted by a limited number of experts were: the problems of retaining a skilled workforce in the sector; the large number of tenant farmers in the rural north of England; the expansion of forestry at the expense of farming; energy costs and finally the attitude of the wider public to the sector.

Tourism

Many of the expert panel highlighted a number of problems but also lots of opportunities for the region's tourism industry. The probability that it will become harder and less practical to travel to continental Europe for holidays and that holidaying at home may increase was highlighted as one potential benefit from Brexit. This was balanced on the other hand by fears that a reduction in farm subsidy may spur more farms to diversify into tourism related activities, particularly the provision of accommodation. This may then result in a saturation of the market.

The general uncertainty around Brexit and the effect that this may have on investment to develop the tourism offer was also highlighted as being an important driver. One area of investment that was mentioned a number of times was digital connectivity. Visitors are increasingly expecting a higher level of connectivity, be it 4G mobile coverage or superfast broadband when they are on holiday.

At a more regional level, concern was expressed at a lack of a coordinated approach to place-based marketing for the rural parts of the region. A lack of a coherent place-based marketing campaign, particularly when our neighbours and competitors do have very good campaigns and profiles, may put the region at risk of missing out. This place-based campaign would also include food production and other aspects of the local rural economy. One respondent highlighted how the potential disruption to longer supply chains could stimulate local supply chains. This could be translated into a much stronger overall regional offer to visitors. Another aspect of the marketing of tourism around increasing the value added of visitors was highlighted. In particular encouraging longer stays in the region which in turn increases spend per visitor.

The final common driver for change suggested by the expert panel, was the impact of Brexit on the labour market. Many of the workers in the region's tourism industry are from the EU. The loss of this pool of workers may have a significant impact on the tourism industry.

Manufacturing

The two top drivers of change for manufacturing post Brexit are access to markets and the impact on the labour market. These closely mirror the drivers highlighted in relation to farming and primary production and the two sectors will face similar problems in these two areas. In the case of access to markets, the concerns for manufacturing seem to be based more towards the impact on exports than on competition from new sources of imports. The North East is the only region in the UK to have a positive balance of trade and this means it is particularly vulnerable to trade shocks of this type.

The next most important drivers for change cited by the expert panel were the impact on inputs, both of raw materials and energy. This is in relation to both the costs and availability of these inputs. One of the possible consequences of a failure to agree the terms of trade for the UK's departure from the EU will be interruptions to supply chains.

Finally, the lack of investment in infrastructure and the possibility of Brexit making a bad situation worse was the next most cited driver for change. Both transport and ICT infrastructure is poor in the rural parts of the north of England. This acts as both a barrier to innovation and entrepreneurship as well as reducing productivity in the region.

The Digital and Creative industries

Understandably, the biggest driver for the digital and creative sector is the lack of connectivity. This mirrors the concern expressed in relation to the manufacturing sector that Brexit will disrupt and delay the deployment of superfast broadband and other ICT infrastructure. This driver was mentioned by nearly every respondent in relation to this sector.

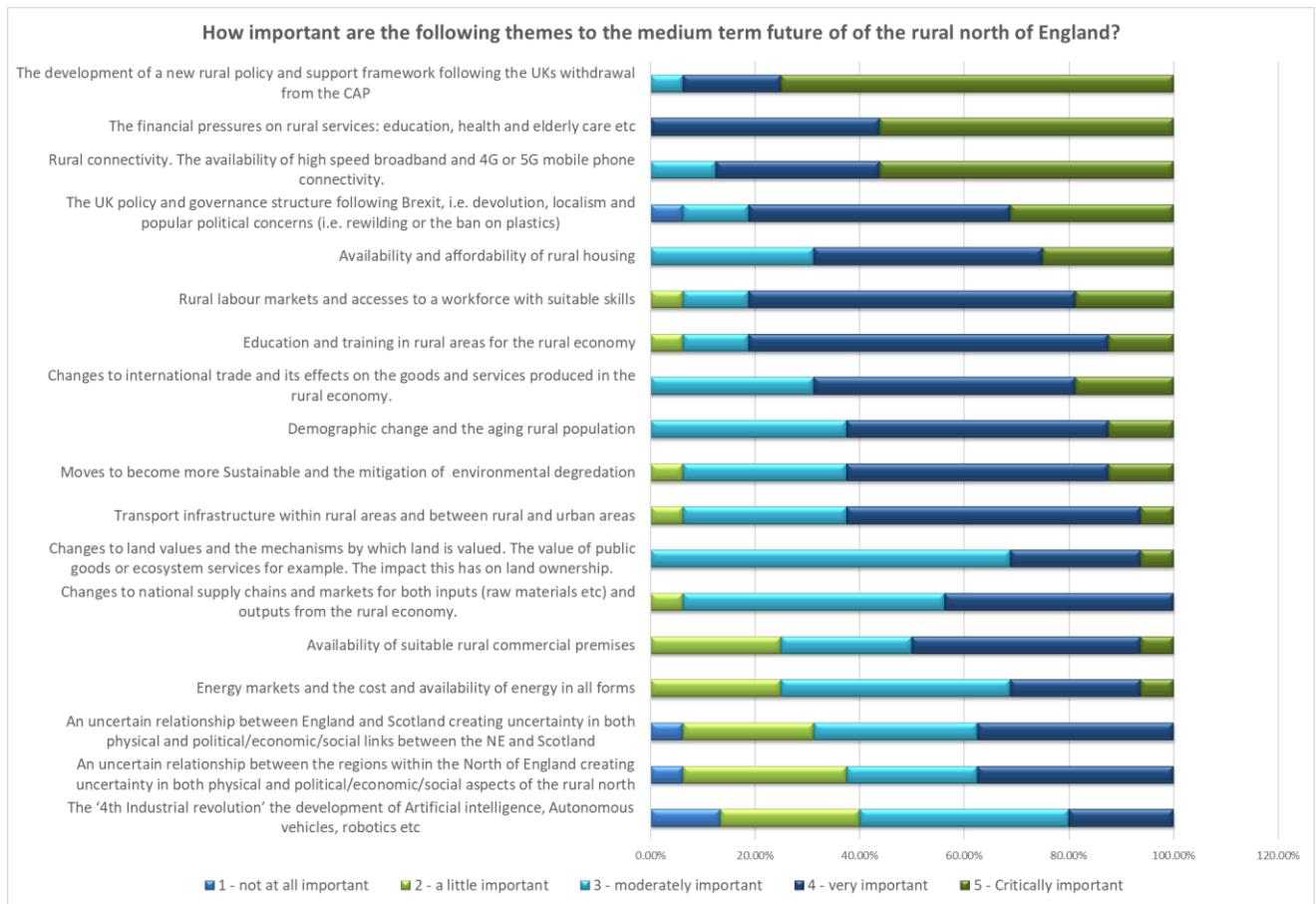
The next driver for change is the ability of the sector to form a coherent voice in the region, particularly as the proposed devolutions start to have an influence. At the moment, the digital and creative businesses make up an important but hidden segment of the economy in the rural north of England. A number of the respondents commented that this sector needs to be better connected and networked both within the rural economy but also to similar clusters in the urban core. The North East has one of the fastest growing digital and creative sectors outside Greater London. It is critical to the development of the rural economy that this sector is supported and nurtured.

Results of Round 2

Overview

In round 2 of the Delphi Survey, the expert panel were asked to indicate how important they felt each driver to be on a scale of 1 – 5, with 1 being 'not at all important' and 5 being 'critically important'. Figure 6 shows the overall results with the drivers being considered most important lying at the top of the chart and those considered least important at the bottom.

Figure 6: Results of Round 2



The most important driver for change in the rural north of England was felt to be, ‘The development of a new rural policy and support framework following the UKs withdrawal from the Common Agricultural Policy’. The survey was carried out just as the Government started its ‘Health and Harmony’ (2018) consultation on the future of rural agricultural policy so this may have been uppermost in the expert panel’s minds at the time of the survey. However, from the detailed comments on this topic in the Round 1 responses and from attending the recent “Health and Harmony consultation” event in Hexham, it is clear that the development of a new suite of rural policies following Brexit is fundamental to the future of all parts of the rural economy, not just agriculture.

Linked to this driver were secondary drivers such as ‘The UK policy and governance structure following Brexit, i.e. devolution, localism and popular political concerns (i.e. rewilding or the ban on plastics)’ which was the 4th most important driver and ‘Changes to international trade and its effects on the goods and services produced in the rural economy’ which was the 8th most important driver for change. These three

drivers highlight both the internal and external issues facing rural areas. To some extent, rural areas are mostly controlled and influenced by forces, be it political or market forces, from beyond the immediate area but there is a challenge with the post-Brexit policy and political structures to perhaps rebalance the power back towards a national or regional level. The ongoing devolution debate is inextricably linked therefore to these issues of governance and control.

What is perhaps interesting given this potential importance of devolution and the development of new rural policies and programmes is that the external relationships between the north of England and its neighbours were not seen as being important drivers for change. These drivers came second and third from bottom in order of importance. This may reflect the current uncertainty and unfamiliarity with the new devolution processes. The two main devolution deals, the Combined Authority and the Borderlands Growth Deal, are yet to reach the wider public's consciousness and indeed have yet to develop concrete proposals for their programmes and policies.

The results of round 1 also show the complexity inherent in considering the future after Brexit. Many of the drivers for change identified in round 1 relate to each other. Taking just one example, the drivers focusing on connectivity (transport and ICT) have an impact on people's residential location choices and thus on the availability of skilled labour and the pressure on services. To make sense of these linkages between drivers we use them to build scenarios as outlined in the next section.

7. The Post-Brexit rural north of England: Future Scenarios

This section draws upon material from both the policy reviews and the Delphi approach to create two scenarios. As already outlined above, the scenarios are not intended to be predictions of the future. This would be an impossible task. Rather they are provocations which set out possible futures as a way of stimulating debate about desirable and undesirable futures. From these extreme future scenarios, it is possible to create a shared vision of the future and to 'backcast' to the present day and develop a set of policy principals that avoid the undesirable effects and achieve the desirable outcomes. The scenarios presented in this section imagine the rural north of England in the year 2030.

Scenario 1: Growing the rural green economy

Context

The UK has left the European Union with a limited trade agreement but not a customs union or free trade agreement. There is a short-term impact, mainly caused by increased friction in trade that recovers over time but not to pre-Brexit levels. The North of England has been able to do better than most out of the trade deals which were concentrated on advanced manufacturing including car production, agricultural and food products. The North of England remains one of the most affordable places to live in the UK and has retained a stable population in contrast to other regions which have suffered population falls as a result of changes to EU migration patterns. The quality of life remains a key draw for many people and as such, key sectors of the economy, particularly in critical areas such as primary production, manufacturing, health and education, are able to maintain a stable workforce.

Politics and governance

The North of Tyne Combined Authority is now onto its 3rd strategic plan with the results of the first two now being achieved. The focus on a rural green economy is starting to pay dividends. Following the success of the first two strategic plans, greater devolved powers have been granted to the Combined Authority. This has strengthened the region's position when negotiating with the devolved administration in Scotland. This has been further strengthened by the success of the first Borderlands Growth deal which has embedded a strong partnership working ethos on both sides of the border and has begun to shape and resource shared priorities.

Economy

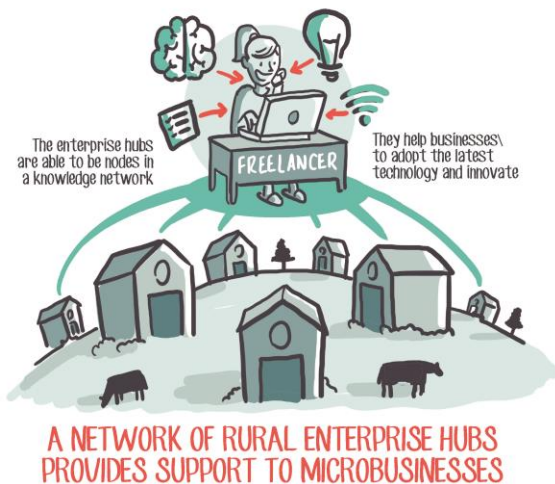


The focus on the key sectors of agri-forestry and food chains; green energy and the digital and creative sectors has created a vibrant and resilient economy in the rural North. The impact of Brexit and the introduction of a domestic agricultural policy focused on the provision of public goods and a healthy natural environment has enabled the rural economy to adapt quickly to the loss of international markets. Upland farms have been able to remain viable thanks to a move to less intensive farming systems, greater value added through the local food production system and increased agri-environment payments for the provision of public goods.

A coordinated approach by the Combined Authority, Local Councils, Academic Institutions and businesses has enabled strategic investment in skills and physical infrastructure to support the region's economy. Academic training at all levels, is geared to allow businesses to retain a skilled workforce in the rural economy. This includes a higher graduate retention rate for the region's universities and greater vocational provision of life long training in all the regions HE and FE institutions. The region now focuses on the export of high value-added products and services both from the agricultural and forestry sectors but also the digital and creative sectors in areas such as film-making and gaming.



The changes to agriculture and its impact on the environment have also given the tourism sector a massive boost. Already one of the most tranquil and unspoilt areas of the country, the focus on agi-environment schemes has further improved this. The funding available for farm diversification and adaption has also helped create more tourism opportunities in the region.



The impact of new technologies is now starting to make a real impact on the economy of the rural North. All rural households and businesses now have superfast broadband and 5G mobile access is available in 50% of the region. The impact of better connectivity is evidenced in the growing number of teleworkers and rural digital businesses in the rural North. These are supported by an expanded network of Rural Enterprise Hubs which provide shared workspace, conference facilities and business

support. These enterprise hubs are also well connected to urban business networks providing a powerful knowledge network linking businesses across the region to international markets, finance and innovation networks within the region's universities.

Infrastructure

Major investment in critical aspects of the region's infrastructure has now been completed. The improvements to the main east-west and north-south arterial roads have improved the region's accessibility both for people and goods coming into the region and leaving it. Improvements to the rail network both with extension of the Tyne & Wear Metro into south east Northumberland and the completion of the Waverly Line through to Carlisle have given a boost for the rural parts of the region. Food research and production hubs have been developed along the Waverly route as they now have greater access to a larger workforce. The expansion of electricity production in the region and the creation of a locally-owned power company has also encouraged manufacturers to set up in the region to take advantage of the lower overheads.

Electric autonomous vehicles are also starting to alleviate some of the mobility issues faced by all sections of the population. They are also providing another opportunity for farm diversification around the urban core as AV service stations. As digital

connectivity improves, it enables rural areas to be at the forefront of the 4th Industrial Revolution with many services being delivered remotely.



Leisure, Recreation, Culture and Well Being

With the need to obtain tourist visas to travel to continental Europe, domestic tourism is booming. Since the region started to coordinate its place-marketing, the rural North has been a significant beneficiary of this boom. Travel numbers and spend-per-visitor have increased. Better accessibility has also improved the ability of people living in the urban centres of the region to access the rural areas.

Table 4

	Social	Technological	Economic	Environmental	Political	Values (Culture)
New Rural Policy	Changes to farming practice have had an impact on certain communities in the region with the move away from outputs challenging a way of life for some	For lowland and arable farms, technology plays a bigger role with robotics, Internet of Things and smart farming having an impact.	Upland farming is now concentrated on public goods and environmental enhancement	Bio-diversity is improving as the changes to farming practice take effect. Better flood protection in the uplands improves flood resilience downstream	The post-CAP rural support programme is now well established with a high level of devolution.	The nature of certain aspects of farming is changing leading to a revaluation of the culture of the countryside. The impact of farming on the landscape is of much greater importance.
Rural Services	An ageing population is placing an ever greater strain on the provision of health and adult care services.	Certain aspects of the delivery of services is being improved by better technology. Housing technology is one area that helps elderly people lead independent lives.	A shift to co-operative and social interest company provision of services creates new opportunities to deliver services	New initiatives linking public health and environmental goods is helping to create a healthier population and alleviate some of the pressure on social and health care systems		Models of social innovation and community delivery of services as tested and developed as part of the Combined Authorities' devolved powers.
Rural Connectivity	Better connectivity results in much higher welfare for people living and working in the rural North.	Every business premises has super-fast broadband. Smart distributed energy systems are being developed in the rural areas.	The connectivity and availability of reliable and cheap power is attracting new businesses in a variety of sectors to the rural parts of the region	Economic growth has been decoupled from environmental emissions and damage. A circular economy ensures better resource use and value-added.	The rural north of England is viewed as a green economy exemplar. It helps attract high-value, high-skilled jobs and delivers significant productivity gains.	Rural is seen as an integral part of the 4 th industrial revolution and a test-bed for many of the new generation of technology. Rural innovations are being exported to many developing countries with significant rural populations
Devolution	Strong devolution helps develop a strong identity and pride in rural areas.	Devolution deals have included a number of new sectors in the 4 th Industrial Revolution. The region is a world leader in rural IoT and CAVs		A greater emphasis on the green economy through devolution leads to a locally designed set of agri-environment schemes.	The Combined Authority gains greater powers over transport and health as its capacity to deliver develops. Stronger ties with the	

					Scottish Government also develop.	
Housing	A focus on improving the area's housing stock has delivered sustainable lifetime homes. The region remains the most affordable in England. Social housing is focused on particular regional issues, farming succession and rural family homes.	The region's Universities have helped develop smarter technological homes which are able to adapt to changing ways of life. They integrate with other aspects of the region such as a regional smart grid.	The forestry supply chain developed in the past 10 years now delivers high quality building materials produced in the region. This has led to the start of a prefabricated construction sector.	The green economy focus has reduced the environmental impact of housing significantly.		The region is known as one of the best places to live and work with affordable housing being one of the key elements of this
Labour Market	The rural North is viewed as an attractive place to live and work. A concerted effort is made to attract people to live and work in the region, building on the natural resources of the rural parts of the region	The investment in skills training, through vocational and academic pathways, is starting to pay dividends with new and existing businesses now reporting no skills shortage in the region.	More affordable housing is an attraction to the workforce	Improved transport has allowed for greater travel-to-work distances and hence access to a larger work force for rural and urban employers. Digital access has enabled more home-working.		
Education & Training	Clearer pathways through education and parity of esteem between vocational and academic courses help develop a skilled local workforce	A system of Newton Rooms develop an integrated education system across all parts of the rural north of England. These digital classrooms link all aspects of the HE system and deliver it to the remotest parts of the region.	The developing green economy is now supported by specialist vocational training and through research conducted in the region's educational institutions. Links between applied research and local industry have grown stronger due to coordinated action through the Combined Authority.			Vocational and academic pathways are seen as being equal with high skill, high wage jobs available to all at the end of each educational path. The network of Newton Rooms and the development of a suite of regionally specific MOOCs ensures that all parts of the rural north of England have access to high quality education.

International Trade			By increasing the amount of value added that occurs in the region, rural areas are now able to export high value products to new markets in the Far East.		Through links to Scotland and other northern regions, the rural economy can take advantage of new markets and place-based marketing campaigns highlighting the green credentials of the region.	
Demographic Change	An ageing rural population will have an impact on rural society. This is starting to be countered by a strengthening counter-urbanisation trend with more jobs being made available in rural areas.	The ageing rural population is supported through technological developments in personalised healthcare, smart homes and transport.	Changes to transport and technology allow more families to settle in the rural areas and bring economic benefits to villages and towns.		Steps are taken to ensure all generations are able to live and work in the rural north of England.	Rural communities are more vibrant and are attracting a diverse population.
Sustainability and Environment	Sustainability and circular economy are delivering stronger rural communities.	The benefits of technological development are making rural communities ever more sustainable. Autonomous electric vehicles for example mean young, old and infirm rural residents have full mobility.	The move to a circular, high value, high skill economy means a boost to the rural economy. More businesses are being attracted to rural areas, not only because of the high amenity value but a vibrant entrepreneurial ecosystem.	The environmental impact of all activity in the region is understood and incorporated into all future plans.		The region builds on its reputation as one of the most tranquil and environmentally diverse areas of the UK. Improvements in the ecosystem management in the uplands is seen as an exemplar for other international areas.
Transport	Greater connectivity both by road and rail improves the wellbeing of rural communities.	The development of a comprehensive [A2]Mobility as a service offer for the region, including rural and urban areas has	Better public transport in the Borders expands the functional labour markets in those areas and steps are underway to facilitate similar	The strategy to decarbonise the transport system through the switch to public transport and electric vehicles means		The strength of the rural economy ensures rural areas do not become subservient to the urban core and participate as

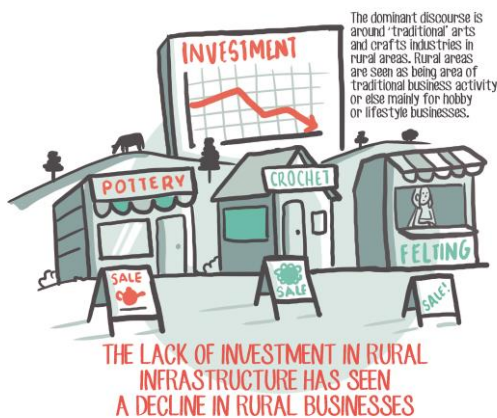
		removed many of the mobility barriers for rural communities.	connectivity using autonomous vehicles in other areas.	transport is on its way to being carbon neutral.		equals as a result of better connectivity.
Land Value and Public Goods			Work by the region's universities helps develop new business models to support the provision of public goods particularly in the area of flood risk management			The rural north of England becomes an exemplar in the provision of public goods.
Businesses Premises	A network of rural enterprise hubs provides business and social support for microbusinesses and homeworkers.	The enterprise hubs are able to be nodes in a knowledge network that helps businesses to adopt the latest technology and innovate.		Support for enterprise and other business hubs includes steps to improve building efficiency and sustainability.		
Energy Markets						

Scenario 2: Aftermath of a hard Brexit

Context

The UK has left the European Union without any agreement on trade or any other substantive issues such as migration or regulatory standards. 5 years ago, a limited trade agreement was reached which has elevated some of the issues caused by the hard Brexit. Following the successful second independence referendum, Scotland has left the Union and is in the process of re-joining the European Union. It has also negotiated a limited trade deal with the EU in relation to its critical sectors, sea food, whisky and other food products and oil & gas. The north of England has suffered more than most from the impact of Brexit. It is only now starting to emerge from a serious recession. High unemployment has resulted in a significant out-migration of working age people.

Economy



The impact on the rural economy has been significant. There have been large scale failures in the farming sector with a consequential crash in land values. In the uplands, large portions of the land have been acquired by conservation charities such as the National Trust, Wildlife Trusts and RSPB. Due to the uneconomic nature of upland farming, significant tracts of land have been given over to rewilding projects. This has caused tension in rural communities and a reduction in economic activity in these

marginal upland areas as the land no longer requires a significant workforce. In some areas this has been balanced by a growth in eco-tourism particularly to see the newly introduced species such as the beaver, lynx and wolf.

The independence vote in Scotland caused the Borderlands Growth Deal to finish 2 years earlier than planned with many of the projects only half finished. The fresh uncertainty around the new hard border between the north of England and Scotland has further depressed economic activity in the region.

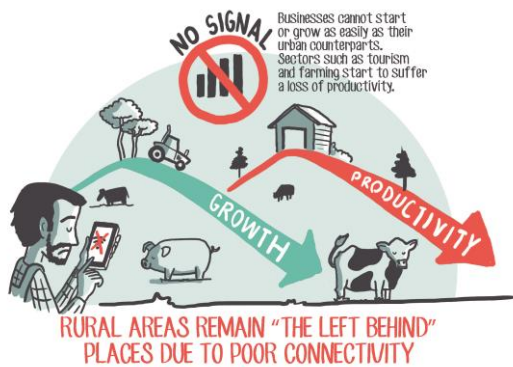


Due to the recession and further squeeze on tax revenue at all levels of government, austerity has been continued far longer than originally planned. Service cuts and withdrawal of certain supports have made it difficult for certain groups to live and work in more remote rural areas.

Politics and governance

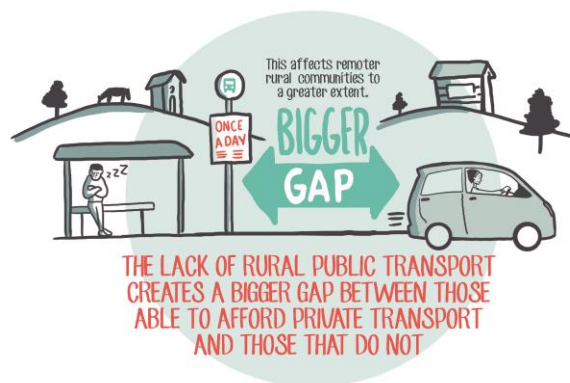
The disruption to supply chains including most importantly the food supply chain has the effect of pushing up prices and therefore inflation. This is presented by sections of the media and political commentariat as profiteering at the expense of ordinary folk. Political parties compete to suggest tougher sanctions on those perceived as taking advantage of the situation. Price controls for many staple goods are developed to cap price rises. This has a negative effect on investment in the sector both at the farm level but also within the food production sector more generally.

Infrastructure



The continuing austerity has resulted in much of the planning infrastructure spending being cut or scaled back. The rural north of England now has one of the lowest average broadband speeds. This has resulted in these areas missing the benefits of the next generation of technology developments such as the deployment of the internet of things and autonomous vehicles.

Other traditional infrastructure projects have also been scaled back or put on hold. East/west and north/south connectivity has not been improved with the result that the Tyne & Wear economic area lags behind the rest of the country with the consequent impact on the adjacent rural areas. The decline in manufacturing in the key sectors of automotive and advanced manufacturing has affected supply chains and employment markets across the region. This has affected infrastructure such as the Port of Tyne and the region's airports. Both have suffered from a lack of investment and are facing significant decline in volume as the neighbouring Scottish airports and ports are able to undercut them.



Leisure, Recreation, Culture and Well Being

The hard Brexit has caused significant issues for many businesses in the leisure and recreation sectors. The loss of free movement to and from the UK has reduced both visitor and migrant worker numbers. This has been partially off-set by greater demand from UK tourism, but the recession has also affected this market as well.

The severe recession has further reduced funding for cultural activity with no local or central government funding now being available. The only available funding is through the lottery schemes which have not been able to fill the gap. Rural cultural activities and institutions have been particularly hard hit with many not-for-profit organisations ceasing to exist. Certain rural areas risk becoming cultural 'black holes' with little or no provision.

Table 5

	Social	Technological	Economic	Environmental	Political	Values (Culture)
New Rural Policy	The loss of support for certain areas of farming means some areas have felt significant decline with consequential social issues. Intensive areas are growing with stronger society though not always concentrated on farming[A3].	In areas where intensification takes place, technology is playing an ever-increasing role. Robotics and Internet of Things now support precision farming and have displaced humans in significant areas of farming and primary production.	Farm incomes and land prices continue to come under pressure. Consolidation and bifurcation of the farming sector result in fewer jobs but higher productivity.	Continued austerity has resulted in cuts to some of the support payments for public goods. This has led to a re-intensification of farming with significant environmental impacts.	Wider rural policy has disappeared from political policy and rural policy is entirely focussed on farming and primary production.	Certain rural areas feel abandoned by the rest of the country.
Rural Services	Austerity has resulted in many rural services being cut back or removed altogether.	The gulf between urban and rural grows further as investment in rural technology stalls.	The hard Brexit means further austerity measures having a disproportionately greater effect on rural areas		Political geography becomes ever more polarised between the left leaning urban core and a more traditional conservative political bias in rural areas.	Rural's image of being a backwater intensifies as political, human and financial capital is concentrated on the urban core.
Rural Connectivity	Rural areas remain "the left behind" places. This starts to impact the ability of all age groups to participate in an increasingly digital society.	Progress has slowed considerably, and the new generation of technology is not being rolled out in rural areas.	The poor connectivity impacts all aspects of the rural economy. Businesses cannot start or grow as easily as their urban counterparts. Sectors such as tourism and farming start to suffer a loss of productivity.	The environment starts to benefit from poor rural connectivity. Less economic land use and less intensive agricultural production, particularly in remote rural areas leads to increased bio-diversity in these areas.	The decline in rural areas, in both population and businesses, means that the rural agenda falls even further down the list of political priorities.	Rural is again seen as being beyond technology. The lack of connectivity places rural in contrast to the innovative urban.
Devolution	The independence of Scotland has created a number of difficulties for communities in and around the Border. Access to certain services is reduced.	The technological developments to deliver a virtual border have not materialised and are still being developed. A lack of investment in the region due to the failure of devolution means missing out on the 4 th Industrial revolution.	The creation of a hard border between Northumberland, Cumbria and Scotland has caused significant economic hardship in key sectors of the rural north of England		The regional devolution debate is seen as being a distraction to the problems facing the national economy. Central government is continuing its programme of centralising power.	A debate is splitting the region about whether to join Scotland or remain part of the diminished UK. This takes up significant political debates and energy with other day-to-day issues being neglected.

Housing	With house prices falling, housing is becoming more affordable. However, people are trapped in rural areas unable to move to more expensive urban locations.		The recession deflates house prices which means affordability rates increase. There is an over-supply of certain types of housing caused by a reduction in working age families and an ever growing elderly population.	Falling house prices result in a failure to invest in the required environmental improvements required in the region's building stock.	Housing is no longer a political priority. The depopulation of the region, particularly the remote rural areas has created an over-supply of housing.	
Labour Market	The loss of job opportunities in rural areas means greater out-migration of younger people and a shrinking labour market.	The lack of digital connectivity restricts technology-based businesses from setting up in rural areas.	Some more basic digital businesses and routine work is still available in rural areas but not the high value- added businesses.			The reduction of job opportunities and the lack of migrant workers leads to greater automation in that industry which does operate in rural areas. Rural areas are not seen as dynamic economies.
Education & Training	Pressure on schools and HE colleges leads to further closures of rural educational institutions. Students must migrate to urban areas to continue their education post-16.	The lack of digital connectivity means students in rural areas are at a disadvantage and lack access to new technology.	The economic downturn results in an outflow of skilled workers. Local HE and FE institutions try to make up the skills gap.		The region's FE & HE institutions are suffering from falling numbers and lack of research funding. With one failure already, other institutions are in difficulty with consolidation seen as the only option for a number of FE institutions.	The rural north of England is on the way to being a low-skilled low wage economy with little value added in the region.
International Trade	The recession results in falling living standards for the region and an outflow of skilled workers.	The loss of some of the high-tech international companies has reduced the region's ability to keep up with developments in technology.	A hard Brexit means much higher trade barriers for agricultural and other manufactured goods hitting the region hard. This triggers a severe recession.		The north east of England is again seen as a low political priority with all effort being concentrated on the South East and North West.	As international trade declines, attempts are made to establish local supply chains, but these are unable to fully replace lost markets.
Demographic Change	After many decades of counter-urbanisation, most rural areas are again	As real wages continue to fall, many instances where technology could	The loss of working adults leads to economic decline in the service sector		The biggest political problem is supporting the growing older	There is a risk of a downward spiral of low wage, low skill

	suffering population decline. This is mainly from working-age adults exacerbating problems of ageing.	be used is being replaced with a low wage workforce. The region is being left behind by the 4 th industrial revolution.	without sufficient markets. In another area, lower land values and increased automation increases productivity but this value is captured beyond the rural economy.		population in the region as working-age people flow out.	economy with a shrinking and ageing population. Managing this decline, both physically and mentally is a difficult task.
Sustainability and Environment	The issue of depopulation of remoter rural areas sets up a debate about rural communities and re-wilding. Those remaining in remote rural communities feel under threat.	The environment and in particular ecosystem services are able to harness new technology to monitor natural systems. Issues such as flood risk management and biodiversity use a number of new technologies.	The economic recession did lead to a reduction in carbon emissions but as the country starts to emerge from the recession the benefits are being lost.		Sustainability and the environment are seen as a luxury. The growing impact of climate change does however start a debate about radical proposals such as a personal carbon allowance and a ban on flights within the country.	Sustainability and the environment are seen as luxuries and priority is given to social issues, particularly adult social care and health provision.
Transport	The lack of rural public transport creates a bigger gap between those able to afford private transport and those that cannot. This affects remoter rural communities to a greater extent.	Rural areas fail to take advantage of the technological developments in transport. Mobility as a Service applications only reach peri-urban areas	HS2 never reaches the North East and sucks up most rail investment. Other transport investments in the region are delayed or abandoned further marginalising the rural North.		Parts of the rural north of England are seen as politically beyond reach and are to all intents and purposes abandoned.	The rural north of England is seen as being peripheral and it is suggested this should be seen as one of its strengths.
Land Value and Public Goods	Communities in the areas where de-intensification is greatest suffer from out-migration and a lack of social capital. The few remaining cultural assets, the pub, village hall and school are lost.		The crash in land values and lack of public financial support for public goods creates two extremes of land use. Highly intensive on the one hand and low input/low intensive on the other with many areas taken out of production altogether.			De-intensification of land use, particularly in the uplands leads to a loss of traditional culture reference points as farming and food production cease to be important in those areas.
Businesses Premises	The lack of investment in rural infrastructure has seen a decline in rural	Much of the new business premises is seen			Rural areas are seen as being areas of traditional business	

	businesses. The dominant discourse is around 'traditional' arts and crafts industries in rural areas.	as catering for non-technological businesses.			activity or else mainly for hobby or lifestyle businesses.	
Energy Markets						

Scenario 3 – A vision for the rural north of England

Almost one year to the day from the first workshop that kick started this project, a second workshop was held at the Sill Landscape Discovery Centre in Northumberland to discuss the two Brexit scenarios created by the project team. It was also an opportunity to create a third, optimal scenario that could act as a roadmap for the future. The workshop was attended by 50 individuals representing local and national government, the local business community, the community and voluntary sector and academia. During a series of activities, the two existing scenarios were presented to the workshop along with a summary of the policy and sectoral analyses highlighted in chapters 3 and 5 of this report. The workshop participants were then asked to create their own scenario which avoided the worst outcomes highlighted in Scenario 2 and achieved the outcomes they thought were appropriate from scenario 1. The final activity of the day was to start to consider a roadmap that delivered the outcomes identified in the third scenario. This was divided into things that the region could do on its own and things that required external input in the form of resources, legislation or support.

Scenario 3, shown in table 6 below was created using the same framework as has been used for scenarios 1 and 2 and building on the information contained in those scenarios, groups worked to generate ideas across a range of policy areas. As you will see, not every cell in the table was completed, but there is a strong overall narrative provided by the scenario.

	Social	Technological	Economic	Environmental	Political	Values (Culture)
New Rural Policy	Sustainable rural communities are at the heart of the new rural policy for the region.	Support for sectors builds from the bottom-up with the primary aim of adding more value in the region. A good example of this is the two new abattoirs have helped develop a thriving local red meat supply chain.	Policy recognises all economic activity in rural areas is inter-linked. Support for SMEs and start-ups is designed specifically for rural areas rather than urban.	The link between environmental sustainability and improvement is now integrated into economic policy. New business opportunities have been created as the region exports its knowledge in this sector.	Bottom-up and co-production is now second nature in the region's policy-making. There is now a strong cohort of policy makers and politicians committed to this inclusive way of working.	The rural north of England is seen as a pioneer of social and economic change. Other rural areas are now started to emulate upon. Shift to payment outcomes has changed the mind set of the sector.
Rural Services	The local 'LEADER' social innovation programme has delivered its 100 th project. Communities are able to share best practice and replicate what works locally and from other areas.	The region is a test bed for technology to improve rural services such as transport, health and education. Smart business now makes remote communities accessible.	Better provision of services in all rural areas has allowed SMEs and larger businesses to thrive in rural areas. A ready and skilled workforce along with new business opportunities to deliver services see the rural economy thrive.	Green therapy has been included in adult and children's social care models.	Integrated budgets and programme delivery is now delivering joined-up support to all rural areas. The NoTCA [A4] is about to start consultation on its 2030-2035 integrated plan.	Social and technological innovation is embedded in the delivery of services.
Rural Connectivity	Business in the region has embraced flexible and remote working as a way both to support rural business and increase sustainability.	Digital by default with 100% coverage in rural North.	The high levels of digital connectivity ensure that businesses in the rural north are fully integrated into the regional economy. Rural areas are also seen as a place to start and build new businesses.		Rural areas are now seen as fully part of next generation technology in the same way that cities are. The opportunities afforded by the 4 th Industrial Revolution for rural areas is embedded in political strategy.	Rural and urban areas are part of the same debate around connectivity.
Devolution	Since Brexit, efforts have been made to develop the governance capacity in the region.		Success is not just about GVA, productivity and jobs. Longer timescales included on devolution deals. Not just annual settlements.		The rural agenda is fully integrated into all regional strategies. Local priority setting with shared outcome measures.	The rural parts of the region speak with their own voice. 'think, plan, speak like a city!'
Housing	Rural areas have now completed the last neighbourhood plan for the region. This has created an integrated spatial plan structure that builds from the bottom-up.		The updated code for sustainable homes has been reintroduced and now includes existing homes. The development of a regional supply chain for sustainable building products has helped in the		Priority is now given to owner occupiers in all parts of the rural region. The devolution of funding for social housing has led to a resurgence of council house building. Working with the local construction	Housing is seen as being integral to creating vibrant rural communities with a mix of housing types and tenures across the region.

			process of improving new and existing homes' sustainability.		supply chain, low cost, sustainable housing is being delivered.	
Labour Market	A range of high skill high wage jobs in a range of sectors are now available in the rural North. This includes provision in social enterprise.	The investment in education and training has created a workforce able to exploit technology. Technology has also expanded opportunity to live and work in rural areas.	Smaller businesses, through the provision of support to access markets and to find suitable property are able to recruit more well-trained people from the region.		The region is well on the way to developing a circular economy which allows more of the value created in the region to remain in the region.	
Education & Training	Rural schools are connected, both digitally and socially to other schools both in the rural area and urban areas. They are also now community hubs delivering life-long learning.	Universities have been able to connect digitally to the rural areas of the region through rural schools but also directly through MOOCs designed for the region.	The significant investment in schools and colleges is paying dividends. Curriculums have been designed to support the region's key strengths and the changing economy.			
International Trade		Technology has been developed that has allowed the region to develop its ports and allow goods to bypass the congested South East.	To support this increase in international trade, business support has focused on SMEs particularly in the rural areas: i.e. advanced pharmaceuticals and high value food products.		North East better connected internationally with new sea routes and direct international rail from region	
Demographic Change	Other changes to housing, connectivity, jobs and training has attracted more young people to live and work in rural areas. Many of the issues of an ageing population are being addressed by joined-up policy and service delivery as well as by social innovation.	Technology and digital connectivity has allowed all age groups to thrive in rural areas.	The shift in farming in parts of the region away from focus on production to a more multi-functional farming as the impact of the 2019 Agriculture Act has seen average age of famers and rural population fall significantly.			
Sustainability and Environment	Efforts to manage and create greater access to	Rural mobility as a service and distributed energy	The green economy is now starting to pay dividends.	The investment in natural capital is paying dividends	The value of ecosystems is now valued beyond their	There is now a st ethos of collabor

	countryside help engage the wider public in sustainability. More community ownership of rural land starts new commoning tradition.	systems have massively increased rural sustainability.	Green energy compliments sustainable tourism and industry with farming now comfortable with balance between production and public goods.	for the region in reducing the impact of adverse weather and climate change.	monetary value and at a more intrinsic level.	working between farming and environmental community which allows new ways working to be developed and te
Transport		Improved E/W links are integrated into wider northern transport network. Travel times to other regions halved.				
Land Value and Public Goods					Natural capital and its value is fully reflected in both regional and national rural policy.	
Businesses Premises			A vibrant mix of rural business spaces is provided by a variety of sources across the region.			
Energy Markets			The region is leading the way with a distributed community-owned model of energy production and supply.			
Future of Forestry	There has been an increase in the area of native woodland planting, including "future natives" in upland areas, largely driven by ELMS and some of it in the pilot re-wilding areas. There has also been a significant increase in urban and peri-urban woodland creation in a new wave of community forests including three in NE England.	New technology and better use of GIS has also enabled those interested in creating new woodlands to make a rapid and reliable desk-based assessment of features of a site and so ascertain the sites' suitability for afforestation. For sites deemed by the system as suitable, a simple file transfer and electronic application to the Forestry Commission completes the grant	Whilst domestic timber supply remains an issue and "Peak Wood" approaches, there has been a sustained increase in multi-purpose productive woodland creation at an average rate of around 1,000ha per year. Much of this new woodland has been planted on poorer arable and dairy land and on upland areas of relatively low sensitivity. Our departure from the EU in 2019 triggered a lengthy period of a relatively weak pound. This helped to	Our larger forests have become more diverse and natural over the last 30 years. As part of this, lynx and European beaver have been successfully reintroduced and golden eagle has returned to northern England and the Scottish borders. Pine marten, once almost extinct, are now relatively common in the forests of northern England and have proved a valuable aspect in grey squirrel control. Red squirrels are	The environmental protections and safeguards rooted in EU directives and laws were largely adopted in UK legislation after Brexit, providing a similar level of environmental protection as before.	The new regulation requiring a pro-rata area of green space be created for every hectare of land developed (partly in response to the climate and mental health crisis) and the need to encourage higher levels of outdoor activity led to a substantial increase in green infrastructure.

		<p>application process. As sites that are deemed suitable have already been given the green light by consultees, the application process takes around a month from start to finish. This rapid and simple process has, together with the strong market for timber, supportive grants (ELMS) and reduction in land values in some places, encouraged an increase in the rate of woodland creation.</p>	<p>sustain domestic timber prices at high levels and confidence among forestry businesses was sustained, as was the value of woodlands and forests. Indeed the natural capital accounting approach first trialled in around 2017, is now common place and there is a well-developed market for trade in carbon credits, both of which have been a boon for forestry.</p>	<p>now largely restricted to the largest forests in northern England and the Highlands of Scotland but the fertility control work that began in about 2016 eventually proved to be an effective control agent and together with the pine marten preferentially predating grey squirrels, the need for grey squirrel control has been substantially reduced.</p>		
4 th Industrial Revolution						

8. Conclusions & Recommendations

- The sheer size of this report speaks to the complexity of the challenges facing the rural north of England. To tackle such a complex and uncertain future requires a coordinated approach. This project engaged a wide range of stakeholders in its development. This needs to be continued and expanded.

Recommendation 1 - A rural development stakeholder network needs to be developed and resourced to maintain the collaboration and knowledge exchange started by this project.

- This project has started the process of creating a vision for the future and a roadmap to take concrete steps on the path to that future. However many of the ideas and objectives are still very abstract. The stakeholders need to be more specific about what is required and from whom. This is something cities are very good at and rural areas need to be much better at.

Recommendation 2 - Using the new devolution deals as the impetus, the rural North needs to develop a specific and costed 'wish list' of projects and programmes that will deliver the outputs contained in the vision.

- The third scenario highlights a number of opportunities for the rural north of England to improve and diversify the economy. However these are often built on tangible (ICT Connectivity and transport) and intangible (skills and knowledge) infrastructure that are currently absent or deficient. A good example given by a participant at the final workshop was local quality food production. Farms wanting to shorten supply chains and diversify into supplying meat produced on their farm are hampered by the lack of an abattoir north of the river Wear. This adds costs to already tight margins.

Recommendation 3 – Any sectoral development programmes must start with a review of the underpinning infrastructure to ensure it is in place to enable the sectoral developments.

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Appendix 1: Sector Summary Tables

AGRICULTURAL SECTOR

Current situation	Drivers	Short term opportunities/ challenges	Medium term / Long term outlook
<p>Agriculture an important sector but in relative decline. Nationally in 2016 i) farmers managed 71% of UK land area, a decline from 75% in 1984; ii) the British food and drink industry = £109bn and employs 3.8 million people¹³⁷. However, the real value of both total crop output and total livestock output fell considerably 1984-2016 and agriculture's share of total employment has also fallen in each of the UK's countries.¹³⁸ iii) the majority of the funding received by the UK from the EU each year, £6bn, is for agriculture - £3bn on direct payments and £0.5bn as support for rural development.¹³⁹ The direct payments support, it is claimed,</p>	<p>1. The outcome of the Brexit negotiation with the EU. Scenarios depicted by the CRE (2017) are: a) <i>Brexit Lite</i> where UK negotiates a free trade agreement with the EU. This would mean marginal changes in production and value of output. b) <i>Brexit Comp</i> The UK has free trade with the EU and also the rest of the world. This is the trade liberalisation option desired by the Institute of Economic Affairs. This would mean reduced prices and UK output values across all commodities. Marked downward effect on beef and sheep sectors.</p>	<p>Opportunities Recognised by all bodies – DEFRA, the NFU, the CLA and Cumbria LEP that leaving the CAP will create the opportunity for a new and “better” Domestic Agricultural Policy (DAP) to be put in place. Government wants “the new system to deliver benefits such as improved air, water and soil quality; increased biodiversity; climate change mitigation and adaptation; and cultural benefits that improve our mental and physical wellbeing while protecting our historic environment.”¹⁴⁵ DEFRA and NFU foresee the period post-Brexit as consisting of 3 phases. <i>Phase 1: March 2019-Feb. 2021</i> Period of relative stability and continuity for the sector as Government is committed to maintaining cash funding to the sector to the end of the current Parliament. Launch of pilot schemes of new funding initiatives and emphasis on the environment. Government will simplify applications for farmers wishing to enter existing schemes providing environmental benefits such as Countryside Stewardship. Direct payments will be phased out. <i>Phase 2: March 2021-2023</i></p>	<p>All bodies - DEFRA, NFU, CLA, Cumbria LEP & SSA wish to see increased agricultural productivity. DEFRA wish “to see the UK producing more, selling more and exporting more of our Great British food.”¹⁴⁸ Government foresees: 1) Increased investment in automation with drilling, harvesting, picking and packaging all being automated.</p>

¹³⁷ NFU (2017), p. 2

¹³⁸ House of Lords (2017), pp. 2, 4, 6

¹³⁹ Scottish Rural Policy Centre (2017), p. 16

¹⁴⁵ Gove (2018b), p. 8

¹⁴⁸ Cumbria LEP (2017), p. 25

<p>makes up around 50-60% of farm incomes in the UK.</p> <p>Regionally, i) of the 39 English LEP areas, Cumbria has the second highest proportion of adults working in agriculture (nearly 12,000) ii) 10% of the UK's dairy herd, 8% of beef cattle and 13% of all sheep and lamb stock are in Cumbria.¹⁴⁰ iii) the agriculture, forestry and fishing (AFF) sector accounts for 25% of economic activity in Southern Scotland, almost 3 times the Scotland average. iv) in Northumberland, in 2013, AFF accounted for 5% of total jobs in the county but had the highest location quotient of any sector in the county (2.25).¹⁴¹</p> <p>In 2016, the UK had a trade deficit of £23bn in food, feed and drink (FFD) products – a deficit both with the EU and non-EU countries.¹⁴² Since the Brexit referendum, UK farm incomes have been boosted due to fall in the value of sterling leading to increased UK agricultural competitiveness and increased value of CAP payments (in euros).</p>	<p>c) <i>Brexit-WTO</i> where no trade agreement was reached with the EU and WTO rules would apply. This would lead to significant adjustments in trade between the UK and EU. EU tariffs and NTBs would affect UK exports.</p> <ol style="list-style-type: none"> 2. The impact of technology on “Smart Farming” – precision farming, genetic biotech. 3. National and global population growth increasing the demand for food. 4. Labour shortages especially in Cumbria due to: migration; ageing economy and succession issues; labour availability due to other developments in the County; affordability of rural housing. 5. Shift in funding to attention on “natural capital” in government policy. 6. Impact of climate change – warmer climate and greater probability of flooding events. 	<p>Review and assessment of pilot schemes. Impact assessment of post-Brexit trading environment.</p> <p><i>Phase 3: 2023 onwards</i></p> <p>The new DAP is fully implemented. However, the date for its full implementation may be postponed depending on whether the Brexit settlement has had a great adverse effect on the sector.</p> <p>In addition, Cumbria LEP, for example, sees a number of opportunities for the County:</p> <ol style="list-style-type: none"> 1. Cumbria could be offered to the country as a test bed/ exemplar for new locally designed and delivered rural/ agricultural development programmes that ensure economic, environmental, social and cultural benefits. They suggest the partners in this to be the LEP, farmer groups, Natural England, the local authorities, the National Park, the National Trust and existing LEADER groups. 2. Add value to the County's milk products by increasing the amount of processing that is done in the County. 3. Develop and expand expertise in environmental land management. Encourage Cumbria and Lancaster Universities to provide research institutes in this field. 4. Develop the cluster of agricultural supply, technology and advice businesses. 5. Re-invigorate the Cumbria/Lake District brand in order to sell the best of the County's produce. ie. “Taste the View” and “Feel the View” marketing. <p><u>Challenges/Fears</u></p>	<ol style="list-style-type: none"> 2) Investment in precision mapping, enabling precise targeting of pests and weeds. Lowers their use. 3) Investment in sensor technology so as one can tell where, when and how livestock should be fed, housed and bred to maximise yield and animal health & welfare. 4) Better integration of research with ongoing training of those working on the land. 5) Rural areas to have unbroken mobile phone and internet coverage & superfast broadband. 6) Creation of a new gold standard
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¹⁴⁰ Cumbria LEP (2016), pp. 7-8

¹⁴¹ Northumberland County Council (2015), p. 14

¹⁴² House of Commons (2017a), p. 3

<p>UK agricultural sector heavily dependant on EU. In 2016: - the EU accounted for 60% of UK's FFD products and 70% of imports. - 7 of the UK's top 10 export markets were EU member states. - 9 of the top 10 countries from which the UK imported its FFD products were EU members.¹⁴³ Most important sectors from point of view of UK's exports to the EU are wheat, barley and sheep.¹⁴⁴</p>	<p>7. Government has created a Food & Drink Sector Council to boost productivity and to help industry to take advantage of emerging opportunities.</p>	<p>1. SRUC believe agri-environment schemes are problematic. Why would WTO members support farmers' incomes for not farming or not harming the environment?¹⁴⁶</p> <p>2. Concern for the food industry is the potential for customs delays once UK is outside the customs union.</p> <p>3. Fear that at the UK level, concessions for economically smaller sector ie. agriculture, could be exchanged for benefits to larger sectors eg. Financial services. Also, Scottish agriculture more exposed to trade restrictions than England post-Brexit.¹⁴⁷</p> <p>4. Not known yet whether there will be devolved power for Scotland to control and deliver spending on agriculture.</p>	<p>metric for food and farming quality.</p> <p>In addition, NFU would like to see financial support for structural change to aid those wishing to cease farming and to help new entrants.</p>
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TOURISM

Current situation	Drivers	Short term opportunities/ challenges	Medium term	Long term target
<p>Tourism is UK's 3rd largest employer accounting for 3.1m jobs and contributing £127bn to the UK economy.¹⁴⁹</p> <p>Growing national and local tourism industry.</p> <p>In 2013, in Northumberland, tourism accounted for 13,200 jobs¹⁵⁰ or 13% of total employment</p>	<p>1. It is believed that national and global population growth and income growth will continue to boost demand for travel and tourism.</p> <p>2. Borderlands Growth Deal</p>	<p><u>Opportunities</u></p> <p>Ending of CAP seen as an opportunity to reassess incentive structures so that linkages between farming, tourism and environment are taken into account.</p> <p>Emphasise the inter-connectedness of urban and rural areas.</p> <p>Capture more international tourists due to the lower exchange rate.</p>	<p>Rory Stewart (2018) has suggested the creation of the "100 miles of Wilderness" brand to keep our rural communities vibrant and self-sustaining. His paper also suggests that the dueling of the</p>	<p>A re-alignment of the balance between agriculture & rural heritage will create more job opportunities in tourism, construction</p>

¹⁴³ House of Commons Library (2017a), p. 3

¹⁴⁴ House of Commons Library (2017a), p. 9

¹⁴⁶ Scottish Rural Policy Centre (2017), p. 1

¹⁴⁷ Scottish Rural Policy Centre (2017), pp. 1-2

¹⁴⁹ Source: Tourism Industry Council (2016), p. 3.

¹⁵⁰ Source: Tourism Industry Council (2016), p. 3.

<p>and had experienced growth in the past 5 years of 18%. Compared to the England average in 2013, the County had a location quotient in tourism of 1.33.</p> <p>A significant new investment has been made to the visitor economy in Northumberland during 2017 with the opening of the Sill National Landscape Discovery Centre.</p> <p>In 2016, Cumbria received > 45 million visitors and provided 36,240 FTE posts.¹⁵¹ The Lake District is the most visited national park and generates the largest tourism spend of any in England and Wales.</p> <p>Of the UK's top 10 source markets for inbound tourism, 8 are other EU countries.</p> <p>11% of all tourism industry employees in the UK are EU nationals.¹⁵²</p> <p>Current structure & focus on business support is heavily</p>	<p>3. The deal that we get with the EU:</p> <ul style="list-style-type: none"> - whether part of customs union; - whether ease of travel changes - whether airports continue close cooperation between UK and EU - whether EU nationals are allowed to stay - whether EU nationals can be sourced easily for supply of labour - will employment rights for UK outbound travel sector remain in force? <p>4. Ending of ESIF funding for tourism development.</p> <p>5. Development of new technologies in transport and travel.</p> <p>6. Challenge of climate change and need to adapt to flooding.</p>	<p>Introduce a Universal Service Obligation on broadband.</p> <p>Introduce Coastal Enterprise Zones.</p> <p>Enhance Coastal Community Fund.</p> <p>Reduce VAT on accommodation, meals and attractions¹⁵³.</p> <p>Abolish Air Passenger Duty on domestic flights to boost domestic air travel and therefore tourism outside London.</p> <p>Ideas from the Cumbria LEP include:. Cumbria to use World Heritage status to market itself; Design packages of "experiences" to appeal to overseas tourists; Further develop the initiatives of "Made in Cumbria" and "Taste Cumbria"; Offer Cumbria up as a test bed for new ideas and technologies; Sell Cumbria to the creative industries in order to attract inward investment in this field; Connections between Food and Drink and the "cultural" experience could be emphasised; Passenger flights from London and Dublin to Carlisle Airport</p> <p><u>Challenges</u></p> <p>If our future relationship with the EU is outside the Single Market, there will be a depressive effect on investment in the tourism industry especially in the hotel sector.</p>	<p>A69 would facilitate visits from local population centres to the new or enhanced visitor attractions along the Wilderness route.¹⁵⁶</p> <p>Improve the public realm and facilities for visitors.</p> <p>Encourage community-led and low-cost innovation projects (Borderlands Growth Deal).</p> <p>Creation of a "Borderlands Rural Energy Centre" at Chapelcross Energy Park.</p> <p>Develop adrenaline attractions.</p> <p>Enhance the cycling offer.</p>	<p>and local economies and have benefits for well-being and the environment.</p> <p>The Lake District to become a major supplier of adventure capital services.</p>
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¹⁵¹ Source: Tourism Industry Council (2016), p. 3

¹⁵² Source: Tourism Industry Council (2016), p. 3.

¹⁵³ Tourism Industry Council (2016), p. 6.

¹⁵⁶ Source: Stewart, R. (2018)

<p>influenced by availability of EU funding.</p> <p>High rate of entrepreneurial activity in rural areas.</p> <p>Long distances involved in travel to learn in rural areas.</p>	<p>7. Strong links between the tourism sector and other rural sectors esp. food and drink manufacture.</p> <p>8. Increase funding for Visit Britain.</p> <p>9. Introduce tourism-related travel products.</p>	<p>At a national and global level, concerns over rising air pollution may lead to increased air taxes and therefore reduced air travel in future.</p> <p>Serious squeeze on skills at all levels and lack of affordable housing will affect the sector.</p> <p>Extend Tier 5 Youth Mobility Scheme to include EU nationals.¹⁵⁴</p> <p>Allow overseas students to work in the industry.</p> <p>Increase provision of career information on the sector.¹⁵⁵</p> <p>Increase apprenticeship training so as to employ the unemployed and economically inactive.</p> <p>Small/micro businesses often suffer from their own manager's lack of strategic skills.</p> <p>Offer opportunities for flexart-time work across the visitor economy to take advantage of professional and business expertise of older people coming into Cumbria to live.</p>	<p>Develop food and drink linked attractions.</p> <p>Develop events and festivals to attract visitors at otherwise less busy periods of the year.</p> <p>In Cumbria, growth of the West Coast economy over the next 5-15 years may suck labour from rural businesses.</p> <p>Activity in the West of Cumbria will provide workforce and accommodation requirements, opportunities for business tourism and the food & drink sector.</p>	
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¹⁵⁴ Source: Tourism Alliance (2017) p. 2.

¹⁵⁵ Source: Tourism Alliance (2017) p. 2.

FORESTRY SECTOR

Current situation	Drivers	Short term opportunities/ challenges	Medium term / Long term outlook
<p>The forestry sector consists of woodland creation and management, timber production, primary wood processing (sawmilling, panels, pulp and paper) as well as secondary wood processing businesses. It is estimated that in 2016 there are over 4,500 forestry businesses in the UK including 550 sawmills¹⁵⁷.</p> <p>The area of woodland in the UK at 31 March 2017 is estimated to be 3.17 million hectares. This represents 13% of the total land area in the UK, 10% in England, 15% in Wales, 18% in Scotland and 8% in Northern Ireland.</p> <p>Of the total UK woodland area, 0.86 million hectares (27%) is owned or managed by the Forestry Commission (in England and Scotland), Natural Resources Wales (in Wales) or the Forest Service (in Northern Ireland).</p> <p>The total certified woodland area in the UK at 31 March 2017 is 1.39 million hectares, including all Forestry Commission/Natural Resources Wales/Forest Service woodland. Overall, 44% of the UK woodland area is certified. The Scottish Borders and northern England together represent the most important area for wood production and processing in the</p>	<p>On the demand side, the key pull factor is demand from UK construction industry, but also manufacturing industry (pulp and paper) and distribution (pallets)¹⁶⁰.</p> <p>Domestic demand outstrips supply. UK is therefore a major importer of wood and wood products. Imports accounted for 82% of wood consumption in the UK in 2016¹⁶¹.</p> <p>On the supply side, both new forest developments and felling are subject to regulations covering environmental impact and biosecurity (Pest control). Most of these regulatory frameworks are European-wide agreements. UK Government is also committed to sustainability principles (certified woodland</p>	<p>A report by Confor (published 14.04.2016) suggests a number of impacts:</p> <p>Non-sector specific effects – impacts of changes in employment legislation, restrictions on free movement of labour and consequences for skills and training, level of business support available including support for R&D.</p> <p>Sector-specific impacts – impacts on the market for timber in the UK, threats to public funding for woodland planting, changes to environmental legislation, controls on plant health.</p> <p>Documents produced by both Confor and the Scottish Parliament identify a range of potential impacts of Brexit:</p> <p>Impacts on trade – UK is a major importer of wood from the EU. Trade barriers are likely to reduce the level of trade in timber and timber products. It is suggested this will increase demand for domestically produced timber¹⁶⁴.</p> <p>Public funding for woodland management could be under threat due to withdrawal from</p>	<p>Possible long term effects on the rate of planting and harvesting of UK forestry.</p> <p>Higher cost of imported wood products supplied to the UK construction industry.</p> <p>Public funding for woodland and forest management is devolved, so in future, devolved administrations could take different positions regarding priority given to forestry issues.</p>

¹⁵⁷ Forestry Commission Statistics (2017) Employment and Business

¹⁶⁰ UN Economic Committee for Europe (UNECE) (2017) "Timber Forecast Sept 2017: UK Timber Market Statement."

¹⁶¹ Forestry Commission data release 28th Sept 2017, Forestry Statistics chapter 3: Trade.

¹⁶⁴ Tatchell-Evans, M. (2016) "Implications of leaving the UE – Forestry" SPICE Briefing, Scottish Parliament, 16/102

<p>UK, accounting for one third of total UK production. Either side of the Border are major wood processing plants such as BSW at Carlisle, James Jones at Lockerbie and Eggers at Hexham.</p> <p>Seven thousand hectares of new woodland were created in the UK in 2016-17, with conifers accounting for over one half (54%) of this area. Kielder Forest Park is one of the largest man-made forests in Europe covering an area of 60,000 hectares mainly across Northumberland between the Scottish Border and Hadrian's Wall.</p> <p>A total of 196 sites were served with a Statutory Plant Health Notice in 2016-17, requiring a total of 700 hectares of woodland to be felled. (This excludes areas felled within the Phytophthora ramorum management zone in SW. Scotland, where a statutory Plant Health Notice is not required).¹⁵⁸</p> <p>New planting across the whole of the UK has declined considerably since the mid-1970's. While there was an increase in new planting in England in the early 1990's that has also declined, and 2016 saw the fewest new trees planted on record¹⁵⁹.</p>	<p>meets criteria for Woodland management including replanting).¹⁶²¹⁶³</p> <p>Supply is also influenced by a fairly stable ownership – 27% state owned and 73% private.</p>	<p>European Agricultural Fund for Rural Development (EAFRD).</p> <p>Possible threat to current environmental protections provided to large scale forested areas which are covered at present by EU Directives to provide detailed Environmental Impact Assessments.</p> <p>Possible opportunity for UK producers of wood products to innovate in order to supply UK construction industry.</p>	
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¹⁵⁸ Forestry Commission Statistics (2017) Chapter 1: Woodlands area and planting

¹⁵⁹ Priestley, S. and Sutherland, N. (2016)

¹⁶² Glynn, M. (2016) "Shaping a post-E future for the UK forestry Sector" report commissioned by the Confederation of Forest Industries (UK)

¹⁶³ Winkel, G. and Derks, J. (2016), pp. 124-127

FISHING

Current situation	Drivers	Short term opportunities/ challenges	Medium and long term
<p>UK fishing industry in decline since joining EEC in 1973.</p> <p>UK fishing fleet fallen by 29% since 1996.¹⁶⁵</p> <p>In 2016: the UK had 11,757 fishermen of whom 5,306 in England; 4,823 in Scotland. UK vessels landed 701,000 tonnes of seafood into the UK and abroad – value £936M.¹⁶⁶</p> <p>The fishing industry, however, is not of great statistical significance in any of the Border counties – accounting for only 0.1% of total employment (and < 0.1% in Cumbria). In absolute terms, of greatest importance in Northumberland – in 2016, 150 people were employed in 55 enterprises.¹⁶⁷</p> <p>The Common Fisheries Policy (CFP) quota system greatest source of frustration for British fishermen, giving for example, 84% of cod in the English Channel to France and just 9% to Britain. EU fleets take 4X as much</p>	<ul style="list-style-type: none"> • Future of industry almost entirely dependent on the Brexit deal which will have impacts on: <ul style="list-style-type: none"> ➤ Fish quotas. ➤ Exclusive access of UK coastal waters. ➤ Fisheries management and enforcement system. ➤ Trade access with the EU. ➤ Public funding of fishing communities. • Environmental sustainability. 	<p>Opportunities</p> <ul style="list-style-type: none"> • The National Federation of Fishermen’s Organisations (NFFO) is arguing for UK to assume full power of its status as an independent coastal nation from March 2019 with no transitional deal with the EU. This would give UK exclusive access to up to 200 miles from its coast – the norm under UN convention on the Law of the Sea. • UK would trade some of these access rights with other countries, including rights for access to the EU’s seas or the EU market for fisheries products. • UK fishermen hopeful of greatly improved prospects for UK fishing industry as they would be able to catch and land more fish. • EU however is arguing for status quo to be maintained as this is beneficial to them. In March 2018, the UK Government backed down on its wishes for the fishing industry during the transition period and now the status quo will be maintained for a period of 21 months. • NFFO hopes that CFP’s decision-making process will be replaced with annual (bilateral or trilateral) international agreements with countries with which the UK shares stocks. 	<p>Nothing explicit mentioned in the literature.</p>

¹⁶⁵ House of Lords Library (2017), p. 7.

¹⁶⁶ House of Lords Library (2017), p. 6.

¹⁶⁷ Source: NOMIS data for 2016.

<p>fish out of UK waters as the UK takes out of EU waters.¹⁶⁸</p> <p>Pre-referendum (University of Aberdeen) online survey showed that 92% of UK fishermen would be voting for Brexit.¹⁶⁹</p> <p>Europe imports about 75% of the British catch with France, Spain and Ireland accounting for 36% of total tonnage exported to the UK's top 20 export markets in 2014/15.¹⁷⁰</p> <p>Trade access vital for the industry as Britain exports the bulk of what it catches and imports the majority of what it consumes.</p> <p>UK was allocated €243.1 M in fisheries funding from 2014-20 under the CFP to support fishing communities.</p>	<ul style="list-style-type: none"> • Protection of the marine environment. • Consumers' demands for different types of fish. • UK's ability to forge favourable new trading relationships with non-EU countries. 	<p>Challenges</p> <ul style="list-style-type: none"> • The concern of fishing ports is that the EU will extract the same preferential deal on fishing access and rights from the UK Government in the final deal.¹⁷¹ • Restrictions on market access might mean tariffs as high as 24% on seafood. • UK would still have to comply with EU market obligations in order to export fish to the EU. • Ability of UK to forge favourable new relationships with non-EU countries questioned by some as the UK would lose bargaining power of the EU. 	
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¹⁶⁸ The Independent (2017), p. 5.

¹⁶⁹ University of Aberdeen (2016).

¹⁷⁰ University of Aberdeen (2016).

¹⁷¹ National Federation of Fishermen's Organisations (2018c).

DIGITAL

Current situation	Drivers	Short term and Medium term opportunities/ challenges	Long term target
<p>Good progress nationally on geographical coverage of “decent” broadband service (97% of premises in England, 2017). However, urban/rural divide (17% of premises in rural areas in UK lack this and 27% in Scotland).¹⁷²</p> <p>Good progress on mobile phone coverage (indoor tel. coverage to 90% of UK premises) but this falls to 57% in rural areas.¹⁷³</p> <p>Just 18% of rural premises in UK can receive indoor 4G service from all operators compared to 64% in urban areas.¹⁷⁴</p> <p>UK relatively high in EU rankings: - 3rd in fixed broadband take-up (87% of households in 2016).¹⁷⁵</p> <p>EC Report (2017) commends UK in being one of the few countries in the EU that has a comprehensive</p>	<ul style="list-style-type: none"> ➤ UK Government to invest £1bn in full fibre deployment and 5G by 2020-21.^{179viii} ➤ Digital Economy Bill (2017) is the Government’s attempt to ensure that Britain remains at forefront of 21st century economy, encouraging greater use of digital technology across the public sector. ➤ The EU’s objective is to ensure that every company and household has broadband access at a speed of at least 30MBs by 2020^{180ix}. 	<ul style="list-style-type: none"> • Increased health and wellbeing of communities and families as digital participation increases, and products that enable independent living and expansion of tele-health are supported. • Wilson et al. (2018) estimate that if digital constraints were overcome, the increase in annual business turnover in those areas would grow by at least £15bn and increase GVA in rural areas by at least £12bn p.a.^{183xii} • EURACTV (2017) sees farmer organisations playing a greater role in encouraging take-up of technology that supports their members.^{184xiii} It suggests the introduction of an agricultural sustainable productivity bonus in the CAP to support green technology investments like smart farming. They argue that precision farming allows higher productivity, less pesticide use and less waste in agriculture. • EURACTIV (2017) argues consumers will benefit from smart agriculture as the quality of food will be improved.^{185xiv} Use of high-tech tools such as GPS 	<p>Independent living will be enabled/extended for the elderly in rural areas.</p> <p>There will be a reduction in social isolation of older people by providing them with internet access and digital skills.</p> <p>Better signposting to digital support & support for connectivity, training & e-commerce to be available on a single portal.</p> <p>Creation of more digital enterprise hubs in rural towns which businesses can use or visit for</p>

¹⁷² Ofcom (2017), p. 3 and p. 11.

¹⁷³ Ofcom (2017), p. 5.

¹⁷⁴ Ofcom (2017), p. 20.

¹⁷⁵ EC (2017), p. 3.

¹⁷⁹ “UK Digital Strategy,” DCMS, March 2017.

¹⁸⁰ EURACTIV (2017), p. 4

¹⁸³ Wilson et al. (2018), p. 8.

¹⁸⁴ EURACTIV (2017), p. 8.

¹⁸⁵ EURACTIV (2017), p. 15.

<p>computing curriculum in compulsory education from the age of 5.¹⁷⁶ However, almost 1/3 of population did not have basic digital skills in 2016.</p> <p>5% of employed individuals in the UK are IT specialists, ranking 3rd in the EU.</p> <p>In a study by Rural England and Scotland's Rural College (RESRC)(2017), almost 80% of rural businesses thought that the use of digital tools and services was important for their future growth potential.^{177vi}</p> <p>However, 52% of RESRC survey respondents said that they faced issues with internet reliability and speed. 20% said that their workforce lacked sufficient digital skills and they had difficulty recruiting people who had them.^{178vii}</p> <p>The number of SMEs involved in selling on-line is higher than the EU average (19% compared to EU average 17%).</p>	<p>➤ Ofcom is considering new coverage obligations on network suppliers and will also be working with industry and government to identify options for improvement to the dependence of mobile networks on mains power given that 70% of all calls to the emergency services are now made on mobile networks.^{181x}</p> <p>➤ Northumberland aims to be the most connected rural county in Britain. Since 1st April 2015, Northumberland has operated the Superconnected Cities voucher scheme which gives grants of up to</p>	<p>systems, devices controlling sprayers and fertiliser distribution, and sensors will contribute to a more sustainable & measurable impact on the environment,"^{186xv} allowing production of "more with less."</p> <ul style="list-style-type: none"> • Reduced brain-drain from rural areas as homes and businesses achieve greater connectivity. • Northumberland CC intends to increase number of public access points to broadband (currently 300 in 2014) and ensure that low cost connectivity is part of tenancy contracts for social housing providers and private landlords. They will explore the feasibility of creating a digital academy in Northumberland to help grow and retain digital skills and talent in the County.^{187xvi} • The <i>Cumbria Rural and Visitor Economy Growth Plan 2017</i> recognises an opportunity for Cumbria to be a test bed for application of new technologies in rural areas and sees it as a priority to build the County as a location for 21st century businesses."^{188xvii} • Cumbria LEP (2017) sees an opportunity for the County to capitalise on roll-out of superfast broadband and its lifestyle offer to develop the "Rockies phenomenon" 	<p>better connectivity, start-up workspace, hot desk space and digital training.</p> <p>Champion super-fast broadband take-up by rural businesses.</p> <p>More rural targeting of existing digital policies and strategies.</p> <p>A dedicated rural strand within the Government's proposed Shared Prosperity Fund, capable of supporting digital skills and growth.^{190xix}</p> <p>More small businesses will be exporting using e-commerce.</p> <p>Smarter digital training and skills development for SME's and their employees.</p>
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¹⁷⁶ EC (2017), p. 6.

¹⁷⁷ RESRC (2017), p. 2.

¹⁷⁸ RESRC (2017), p. 3.

¹⁸¹ Ofcom (2017), p. 7.

¹⁸⁶ EURACTIV (2017), pp. 15-16.

¹⁸⁷ NCC (2015), p. 9.

¹⁸⁸ Cumbria LEP (2017), p. 3.

¹⁹⁰ Wilson et al. (2018), p. 9

<p>Large and medium-sized businesses are more positive about digital benefits than small businesses.</p> <p><i>iNorthumberland and Connecting Cumbria</i> have been working with BT to connect more of their county's communities and businesses to broadband, superfast broadband and ultrafast broadband.</p> <p>NCC has maximised digital transactions and agile working in council work.</p>	<p>£3,000 to SME's to enable them to secure speeds of at least 30mbps.^{182xi}</p> <p>➤ Northumberland intends to embrace digital technology and harness its capacity to increase the participation and wellbeing of people with long-term conditions, disabilities and the elderly.</p>	<p>especially in the south of the county.^{189xviii} i.e. attract digital and creative firms to locate to Cumbria.</p> <p><u>Sector Challenges</u></p> <ul style="list-style-type: none"> • Ability of rural businesses in accessing digital training. • Lack of digital skills in current work force & struggle to recruit those who have them (Cumbria). • Cumbria LEP (2017) recognises the technological driver as being a potential challenge to the tourism sector in Cumbria as the county will need to compete for connectivity and speeds obtained by staying visitors. 	<p>Precision farming will allow higher productivity, less pesticide use and less waste in agriculture. Precision farming is also good for the environment.</p> <p>The quality of food will be improved through smart agriculture.</p>
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¹⁸² NCC (2015), p. 15.

¹⁸⁹ Cumbria LEP (2017), pp. 31-32

ENVIRONMENT & RENEWABLE ENERGY SECTOR

Current situation	Drivers	Short term opportunities/ challenges	Medium term	Long term target
<p>National</p> <p>Since the passing of the Climate Change Act, UK has out-performed its carbon budgets. Since 1990, the UK has cut emissions by 42% while the economy has grown by approx. 65%.¹⁹¹</p> <p>In 2016, 47% of electricity consumption was from low carbon sources, double the level in 2010.</p> <p>The UK has the largest offshore wind capacity in the world.</p> <p>Av. Household energy consumption has fallen by 17% since 1990.</p> <p>England recycles 4x what it did in 2000 in local authority waste.¹⁹²</p> <p>>430,000 jobs in low carbon businesses and their supply chains in the UK. 1 in 5 electric vehicles in use on the Continent are made in the UK.¹⁹³</p>	<p>Government intends to put emissions reductions and land stewardship at heart of post-EU agricultural policy.</p> <p>Climate Change Act (2008) commits UK to reducing greenhouse gas emissions by at least 80% by 2050 compared to 1990 levels.</p> <p>Government published Clean Growth Strategy, Oct. 2017 with 8 strands. PM states that “economic growth has to go hand-in-hand with greater protection for our forests and</p>	<p>Government will simplify applications for farmers wishing to enter existing schemes providing environmental benefits such as Countryside Stewardship. Direct payments under the CAP will be phased out over the two-year transition period from when we leave the EU in March 2019. The new system will “pay farmers public money for public goods.”¹⁹⁸</p> <p>Government wishes to “incentivise methods of farming that create new habitats for wildlife, increase biodiversity, reduce flood risk, better mitigate climate change and improve air quality by reducing agricultural emissions.”</p> <p>Leaving the EU will not affect the UK’s commitments under the Climate Change Act – UK has more ambitious targets than the EU.</p> <p>The National Productivity Investment Fund will provide an additional £4.7bn and an extra £2bn p.a. by 2020-21 in UK science, innovation and research.</p> <p>Phase out installation of high carbon forms of fossil fuel heating. Government will spend £4.5bn to support innovative low carbon heat</p>	<p>UK to develop one of the best electric vehicle charging networks in the world.</p> <p>UK to accelerate the transition to zero emission vehicles.</p> <p>Position the UK at forefront of Connected and Autonomous vehicle technologies and ensure UK leads the world in design, development and manufacture of electric batteries.</p> <p>Carbon capture usage and storage to be deployed on a large scale.</p> <p>UK to phase out use of unabated coal to produce electricity by 2025.</p>	<p>Energy productivity in businesses and industry to be increased by at least 20% by 2030.</p> <p>All fuel-poor homes to be upgraded to EPC Band C by 2030.</p> <p>End the sale of new petrol and diesel cars and vans by 2040.</p> <p>Work towards zero avoidable waste associated with the extraction, use and disposal of our resources by 2050.</p>

¹⁹¹ HM Government (2017), p. 5.

¹⁹² Ditto, p. 6.

¹⁹³ Ditto, p. 7.

¹⁹⁸ This is the Government’s intention set out in a consultation document on the future of English farming and the environment launched by the Environment Secretary on 17th February 2018, see Gove (2018b).

<p>UK is leading the world in expertise on low carbon and green technologies. Global leadership in green finance. North East Enterprise Zone focus is on energy sector and Blyth hosts the National Offshore Renewable Catapult Centre. West Cumbria has NNL and Dalton Institute at West Lakes Science Park leading on renewable technologies.</p> <p>It is argued that the environmental effects of the CAP have been detrimental – loss of hedgerows, biodiversity, bees, birds.</p> <p>Regional Natural environment very important for all border counties in attracting tourists.</p> <p>Northumberland Economic Strategy records highest growth in the sector “Mining, quarrying and utilities”, up 67% in period 2009-13 but still accounts for only 2% of total employment.¹⁹⁴</p> <p>In 2011, there were 26 small hydro schemes in Cumbria and 23 in D&G. Walney Windpark and its</p>	<p>beaches, clean air and places of outstanding natural beauty.”¹⁹⁵</p> <p>Government states that the UK low carbon economy could grow by an estimated 11% p.a between 2015 and 2030, 4 x faster than the rest of the economy and could deliver between £60bn and £170bn of export sales and services by 2030.¹⁹⁶</p> <p>The Clean Growth Strategy (2017) will see Government invest over £2.5bn in support of low carbon innovation from 2015-21.¹⁹⁷</p> <p>Energy sector identified in all 4 Border authorities as a sector priority.</p>	<p>technologies in homes and businesses between 2016 and 2021.</p> <p>Improve the energy efficiency of homes and offer all households the opportunity to have a smart meter by 2020.</p> <p>Report annually on UK performance in delivering GDP growth and reduced emissions through an “Emissions Intensity ratio.”</p> <p>Government to introduce a voluntary public sector target of a 30% reduction in carbon emissions by 2020-21.</p> <p>Explore new and innovative ways to manage emissions from landfill.</p> <p>Offshore wind, oil and gas activity key part of Northumberland offer.</p> <p>Nuclear new build in Cumbria could provide construction jobs for the County. However, there is fear of lack of supply of skilled workers needed by expansion of economy on West Coast.</p> <p>Potential for growth in wind power – Scottish Borders has an abundance of suitable sites. However, local opposition a challenge.</p> <p>Growth potential in hydro-power.</p> <p>Cumbria LEP has considered the Solway Firth as a source of estuarine tidal power.</p>	<p>UK to shift more freight from road to rail.</p> <p>Establish a new network of forests in England and increase the amount of UK timber used in construction. UK to develop world leading Green Finance capabilities.</p> <p>Invest in making cycling and walking the natural choice for shorter journeys.</p> <p>Expansion of jobs in Cumbria based on new build in nuclear on W. coast with consequent growth in accommodation sector, housing construction, service sectors and retail.</p>	
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¹⁹⁴ Northumberland County Council (2015b), pp. 17-18.

¹⁹⁵ HM Government (2017), p. 2

¹⁹⁶ HM Government (2017), p. 8.

¹⁹⁷ HM Government (2017), p. 11.

extension, off the coast of Cumbria, is the biggest offshore windfarm in the world.				
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