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# DCLG/DEFRA Research into Drivers of Service Costs in Rural Areas

## Rapid Evidence Assessment - Literature Review

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## Summary

1. As part of the Research into Drivers of Service Costs in Rural Areas, a Rapid Evidence Assessment (REA) of the published literature on local authority service delivery costs has been undertaken, focusing in particular on areas where there is evidence that rurality is a driver of additional unavoidable costs for rural authorities, compared to their non-rural counterparts.
2. The REA has been carried out according to the guidance issued in the Government Magenta Book and Toolkit. LG Futures' has adopted the principles of a literature review to examine evidence and information relating to costs and delivery issues in rural areas in comparison with urban areas
3. The key findings from the literature review are:
  - There are a variety of different ways in which rural areas receive additional funding to compensate for higher costs of service delivery in rural areas in funding formulae in England and elsewhere. Not all of these methods have been determined based on detailed representative statistical analysis;
  - There are numerous differing definitions of rurality and sparsity which are used in allocating additional resources to rural areas e.g. population density, remoteness from population centres, geographical features (e.g. small islands);
  - There is a significant amount of research relating to potential reasons for higher costs in rural areas, although very little of this evidence has been quantified in financial terms and much of the evidence is anecdotal;
  - Higher costs are generally identified as being related to longer travel times, higher travel costs, diseconomies of scale and lack of alternative services; and
  - Recent research on delivering public sector services in rural areas has tended to focus on other aspects of rurality, including unmet need, alternative service delivery models to overcome issues of rurality, rural deprivation and the impact of cost pressures.

# 1. Introduction

- 1.1 As part of the Research into Drivers of Service Costs in Rural Areas, a Rapid Evidence Assessment (REA) of the published literature on local authority service delivery costs has been undertaken, focusing in particular on areas where there is evidence that rurality is a driver of additional unavoidable costs for rural authorities, compared to their non-rural counterparts.

## Background: Conducting Evidence Reviews

- 1.2 This REA has been carried out according to the guidance issued in the Government Magenta Book and Toolkit:

- [http://www.civilservice.gov.uk/wp-content/uploads/2011/09/the\\_complete\\_magenta\\_book\\_2007\\_edition2.pdf](http://www.civilservice.gov.uk/wp-content/uploads/2011/09/the_complete_magenta_book_2007_edition2.pdf)
- <http://www.civilservice.gov.uk/networks/gsr/resources-and-guidance/rapid-evidence-assessment>

- 1.3 Based on the Toolkit, there are six possible options for reviewing evidence, which take into account the time available to the research team, the specific requirements of the project and the areas being reviewed. As set out in LG Futures' research specification, we have adopted the principles of a literature review to examine evidence and information relating to costs and delivery issues in rural areas in comparison with urban areas:

- *Literature reviews collate studies that are relevant to a particular topic and summarise and appraise the research in order to draw conclusions from it... Literature reviews can be useful for providing information on a specific topic in a very short period of time.*

- 1.4 There are limitations to the process of conducting a literature review, particularly in relation to potential bias in selecting studies for review. However, within the constraints of the time available in which to complete the assessment, a literature review has been conducted using the following principles:

1. Set out research parameters i.e. to identify evidence which relates to the potential additional cost of delivering services in rural areas (cost drivers in rural areas);
2. Set out research scope i.e. which services are of interest (potentially broad, but focused on the key services we wish to investigate which are provided by local authorities and also similar services in other areas of public spending e.g. community health care);
3. Identify what evidence we are looking for i.e. quantitative reports which identify cost issues and suggest different factors on which rural areas could be

compensated for higher costs; qualitative reports which identify drivers/reasons for higher costs and also potentially provide anecdotal evidence of higher costs; and evidence from local authorities and other sources about particular cost and service challenges in rural areas. We have also sought to identify examples from international evidence of rural factors used in funding formulae; and

4. Report on the findings (contained within this report) and draw conclusions on the potential impact upon other aspects of the project i.e. service areas for review, analysis of national data sources and qualitative/quantitative fieldwork.

## Research Parameters

1.5 In reviewing the literature on the delivery of local authority and other public sector services to identify issues relating to potential unavoidable costs in rural areas, the following search parameters have been used to identify relevant studies at a local, national and international level:

- Definitions of rurality and remoteness;
- Measures of rurality and remoteness;
- Cost pressures in rural service delivery;
- Costs associated with delivering services in rural areas;
- Cost differences between rural and urban service delivery;
- Service delivery differences between rural and urban areas;
- Aspects of rurality affecting service delivery;
- Delivering local authority services in rural areas;
- Rurality in other service sectors e.g. health;
- Factors used in funding formulae to distribute additional funding to rural areas; and
- Difficulties in reflecting rurality in funding formulae.

1.6 The scope of the literature review has been focused on several service areas:

- Services provided by local authorities in England (currently funded through the Local Government Finance Settlement);
- Services funded by national funding formulae in England e.g. health, police;

- Services funded by the Scottish Government, Welsh Assembly and Northern Ireland Assembly; and
- Services funded by relative or population-based funding formulae in other countries.

1.7 The findings from the evidence review are considered in the following sections.

## 2. Defining and Understanding Aspects of Rurality

- 2.1 In the context of funding formulae and comparative analyses based on different levels of rurality, definitions of rurality are generally based on “*population size/population density; geographic/spatial indicators, including a measure of travel time; and population characteristics weighted to determine a degree of rurality*”<sup>1</sup>.
- 2.2 The urban/rural classifications used in the main ONS and DEFRA classifications are based on population size/density. The 2011 Rural-Urban Classifications for small area geographies, for example, classify output areas (OAs) as ‘urban’ if they were allocated to a 2011 built-up area with a population of 10,000 or more. Furthermore, the urban and rural domains are then sub-divided into six broad morphological types based on the predominant settlement component.
- 2.3 The classification also categorises OAs based on context – i.e. whether the wider surrounding area of a given OA is sparsely populated or less sparsely populated. Assignments of lower layer super output areas (LSOAs), middle layer super output areas (MSOAs) and wards to urban or rural categories are made by reference to the category to which the majority of their constituent OAs are assigned. However, these definitions are not used in local government funding formulae (see section 3), where population sparsity itself is used as the characterising factor<sup>2</sup>.
- 2.4 However, a report by Dijkstra and Poleman (2008) on rurality issues across Europe highlighted the significance of remoteness in classifying rural populations, stating that, “*remote rural regions are clearly faced with a different set of problems than rural regions close to a city*”. They classified remote rural areas as those where less than half of the population could reach a city with 50,000 inhabitants or more within 45 minutes and found that there were significant differences in key productivity and outcome measures for remote rural areas<sup>3</sup>.
- 2.5 A report published by the Countryside Agency (2004) identified that, in a small and compact country like England, rurality is actually a “*multi-faceted property*”:
- “*Some areas are both rural and remote whereas others are rural but quite closely approximate to highly urban areas. Some rural areas can be richly interspersed with villages and small towns and others characterised by large stretches of fairly barren land, especially hill country. Urban areas can also have very different properties – from major urban conurbations to the relatively large industrial towns formed during the Industrial Revolution*”<sup>4</sup>.
- 2.6 The report incorporated a combination of indicators in its analysis of rurality, including<sup>5</sup>:
- Indicators based on sparsity and density – simple density measures, the proportion of an overall area that is classified as sparse or dense, the proportion of an overall resident population that live within areas regards as sparse or dense

and the proportion of census output areas (COAs) in an area that can be categorised as sparse or dense;

- Indicators based on distance – the minimum distance between and COA and its nearest neighbour (inter-COA distances), radial distances, perimeter distances (related to area size), routed road distances;
- Settlement patterns – taking into account the isolation of COAs based on inter-COA distances to give a measure of dispersion or non-clustering.

2.7 A broad definition of the impact of rurality on delivering services can be found in relation to rural health intervention services in Australia, although clearly the nature of the country in relation to size, accessibility and population vary significantly from England. *“Rurality and remoteness can be considered as a set of characteristics, including greater distances, lower socioeconomic status, lower educational levels, higher proportions of Indigenous people, specific occupational health and safety risks, a relatively close relationship with nature, specific cultural attitudes, poor access to services and smaller population centres”*<sup>6</sup>. In relation to health services, it was suggested that this can have a specific impact on:

- Prevalence of a health-related condition;
- Rate of incidence of a health-related event;
- Cost and timing of an intervention;
- Type and range of health professional and worker delivering the service;
- Way in which the service is delivery (i.e. model of care, delivery mode); and
- Total health impact of particular rates of incidence and prevalence.<sup>7</sup>

2.8 Specifically in relation to transport, the Passenger Transport Executive Group (PTEG) in England identified four criteria that would need to be satisfied to prevent communities from

being isolated, providing a much broader definition than just rurality, which could also apply to urban areas<sup>8</sup>:

- **Available:** the passenger transport network should be within easy reach of where people live and take them to and from the places they want to go at times and frequencies that correspond to patterns of social and working life. People also need to be kept informed of the services that are available;
- **Accessible:** vehicles, stops and interchanges (and the walking routes to and from these) must be designed in such a way that, as far as possible, anyone can use them without difficulty;
- **Affordable:** people should not be 'priced out' of using passenger transport because of high fares and should be able to easily find the right ticket for them;

- **Acceptable:** people should feel that passenger transport is something that is equipped to meet their needs, as well as comfortable, safe and convenient.

### 3. Rural Elements in Current Funding Formulae

- 3.1 Funding to reflect the potentially greater costs of providing services in rural areas has been included in funding formulae for public sector services in England in a variety of different ways. For example, there are sparsity top-ups in several of the Relative Needs Formulae (RNF) used as part of the local government finance settlement.
- 3.2 In the 2013/14 local government finance settlement, the government made three technical adjustments to the Relative Needs Formulae (RNF). These changes increased the weight of sparsity in the RNF and changed the definition of the sparsity indicator to give more weight to super sparse areas. In general terms, rurality or sparsity is linked to measures of population density as outlined below, rather than the more complex urban/rural classifications discussed in section 2. In terms of the current RNF:
- **Local authority central education functions:** ward sparsity was used to calculate the top-up, which created a weighted population at output area level of the super sparse (less than 0.5 residents per hectare) and less sparse (between 0.5 and 4 residents per hectare)<sup>9</sup>. A weighting of 3.5 was applied to the super sparse areas;
  - **District Services Environmental, Protective and Cultural Services (EPCS) sub-block (part of the EPCS service block):** the approach to defining sparsity was similar to the approach used for education, but a weighting of 3 was applied to the super sparse output areas; and
  - **Social Services for Older People sub-block (Adult Social Services Block):** the calculation of sparsity was more complex, but still created a weighted population of older people living in output areas which were the super sparse (less than 0.08 residents aged 65+ per hectare) and less sparse (between 0.08 and 0.64 residents aged 65+ per hectare). A weighting of 3 was applied to the super sparse output areas.
- 3.3 The Fire and Rescue formula included the following variables, which were related to population sparsity/density<sup>10</sup>: length of coastline per head of population, population density and population sparsity, where population sparsity was measured at output area level and defined in relation to fire services in a similar way as in the other elements of the RNF above, but with a weighting of 3 on the super sparse areas.
- 3.4 In terms of recent funding changes, in February 2013, the government allocated £8.5m in funding to 95 rural authorities, through the Efficiency Support Grant for Rural Areas, to support the delivery of efficiencies in services<sup>11</sup>.
- 3.5 In 2014/15, the value of the grant increased to £9m and it was renamed the Rural Services Delivery Grant. This distributes funding to the different classes of authority based on a definition of super sparsity as, “the resident population of those Output Areas within the area

*of the authority at the 2011 Census with 0.5 or less residents per hectare, divided by the total resident population of the authority, calculated using information from the 2011 Census*<sup>12</sup>.

- 3.6 The funding was also rolled into the “base” funding for authorities, meaning that the grant will be received in 2014/15 and future years through the Revenue Support Grant (subject to future years’ funding changes). In February 2014, the Government announced a further £2m in “top-up” to the Rural Services Delivery Grant, which would be received as a Specific Grant payment in 2014/15.
- 3.7 Although outside the scope of this review, the Police Allocation Formula provides another example of how rurality is taken into account in funding allocations. Crime statistics show that urban forces have different profiles of police activity than urban areas e.g. violent crimes tend to be more prevalent in urban areas, but there are more road traffic accidents in rural areas. The Police Allocation Formula compensates for these differences by, “*allocating a bigger share of the funding for a particular category (e.g. vehicle crime, reducing road traffic accidents etc.) to forces which have greater needs in that area*”. For the workload for road traffic accidents, for example, population sparsity is used to calculate the relevant top-up<sup>13</sup>. The formula also includes a general sparsity top-up, where population sparsity is defined using a similar approach to the elements in the RNF, with a weighting of 2 applied to the super sparse areas.
- 3.8 Approaches to compensating for rurality in Scotland, Wales and Northern Ireland are considered in Section 5.

## 4. Drivers for Higher Costs in Rural Areas

4.1 The first phase of our literature review has been to identify literature relating to the potential drivers for additional costs in rural areas when compared with urban areas. Many of the older studies particularly highlight characteristics of rural areas which impact on cost and delivery e.g. OECD (1993)<sup>14</sup> categorized the defining factors as distance, critical mass and population density.

4.2 Hindle et al (2003)<sup>15</sup> suggested, “*three potential reasons why the cost of delivering services per capita of needs-weighted population may vary between urban and rural areas, other things*

*equal*: higher mileage costs, time-related costs and economies of scale (which takes into account the lower numbers of clients or relative size of service centres, for example). Asthana

et al (2003)<sup>16</sup> provided further comment on the inherent nature of rural areas that impact on the cost of service delivery:

- **Economies of scale:** unit costs tend to be significantly higher in smaller communities than in larger ones. Provision rates of services also tend to show lower levels than would be tolerated in an urban setting (as client numbers, for example, are much lower). A report from the Scottish Office (2011) on the Third Sector cited the impact of small services in producing higher unit costs for rural services, particularly where cross-subsidies are not available with services in urban areas<sup>17</sup>;
- **Additional travel costs:** increased travel for clients and workers and, for services taken to clients, there are additional transport costs;
- **High level of unproductive time:** more time spent travelling results in higher levels of unproductive time for workers, which can also have an impact on compliance with national standards;
- **Additional communication costs;** and
- **Poorer access to training, consultancy and other support services:** travel costs, economies of scale and levels of unproductive time can all impact on making training requirements in remote areas more costly to fulfil, as well as lack of suitable staff.

4.3 Hindle and Annibal (2011) differentiated additional rural costs for services delivered to or consumed by people and services based on infrastructure:

- **People services:** additional costs relate mainly to “*sparsity, the density of consumers, the spatial distribution of consumers and the time and/or cost of travel associated with accessing the service*”, and

- **Infrastructure services** (e.g. highways or flood defences): additional costs are derived from *“the lower number of people benefiting from or using the asset and higher costs in meeting national design or construction standards resulting from local conditions influenced by geography”*<sup>18</sup>.

4.4 Hindle and Annibal (2011) also included examples of where rurality is likely to be a factor in the cost of service delivery and where rurality does not play a part e.g.

- **Highway maintenance:** other than for the time taken to access remote sites, rurality per se is not an issue, as other costs are determined by common factors such as the price of materials and the cost of labour. However, rurality does become a more important factor when *“determining priority routes for gritting and snow clearance”*;
- **Public transport:** the unit cost of delivery is substantially affected by rurality, where costs are exacerbated by *“high mileage trips on more challenging topography, often undertaken on poorer roads”*; and
- **Library services:** whilst the core costs (provision of staff, maintenance and provision of books) may be less affected by rurality as they vary depending on the scale of the activity, there is a minimum level of cost associated with each library which may result in higher unit costs for smaller rural libraries<sup>19</sup>.

4.5 Research by LG Futures for SPARSE-Rural in 2011 identified potential rural cost premiums in a number of service areas: transport, waste collection and recycling, domiciliary care and visits relating to services such as housing benefits and council tax<sup>20</sup>. A small scale study undertaken by East Sussex in 2003 calculated rural premiums for a number of services, including district nursing (53%), domiciliary care (18%) and lunch clubs (40%)<sup>21</sup>. Although less recent, a report from 2000 contained evidence from several rural authorities in relation to cost differences in social care<sup>22</sup>:

- Staff travel costs were *“about four times as high”* in rural parts of Dorset than in the urban centres for social care services and domiciliary care providers were *“10 per cent more expensive in rural areas”*; and
- Wiltshire County Council computed that a rural team social worker *“averaged 3,777 miles more per year than an urban team social worker”*. For the total rural team this equated to *“approximately 0.65 extra full-time equivalent (FTE) posts and additional mileage payments of over £11,000 per annum”*. They also calculated that residential care costs were 15% higher in rural areas, primarily linked to services being provided in smaller homes.

4.6 In a report from 2004 on the effect of geodemographic factors on cost and performance of a range of public services, including waste collection, home-to-school transport, district nurse visiting and domiciliary care, the authors found that there was a *“very strong rurality effect”*,

such that the average value of standardised cost/performance indicators was “*significantly higher*” in the more rural areas.

4.7 This research used Simplified Modelling of Spatial Systems (SMOSS) to identify cost differences between rural and non-rural areas and also the specific characteristics of rurality that best explained the difference. For example, cost differences for primary schools were associated with pupil numbers, isolation and the population living in sparse areas. Cost differences for day centres and district nursing, however, were associated with the size of the area (measured by its perimeter) and radial distances (measure of route distances between population centres)<sup>23</sup>.

4.8 Other recent studies and reports on rural services in relation to local authority services have also focused on a broader range of direct and indirect issues which affect costs for rural services:

- **Higher living costs in rural areas:** evidence presented in a report on Rural Communities for the Environment, Food and Rural Affairs Committee in 2013-14 identified that rural communities pay higher council tax bills per dwelling; people working in rural areas earn less on average than their urban counterparts, but rural homes are more expensive; the cost of living is rising faster in rural areas (based on the Countryside Living Index); fuel poverty has a greater impact in rural areas; and transport costs account for a greater proportion of household expenditure<sup>24</sup>. The Countryside Living Index also highlights higher childcare costs in rural areas<sup>25</sup>. Smith et al (2010), in work undertaken for the Joseph Rowntree Foundation (JRF) and the Commission for Rural Communities to produce minimum income standards, suggests that the, “*minimum cost of living in rural areas is greater than living in urban areas*”, with transport being the largest element of extra costs<sup>26</sup>. The difference between rural and urban areas was estimated at between 10% and 20% in 2010<sup>27</sup>.
- **Changing demographics in rural areas:** a report commissioned by DEFRA (2013) on the impact on ageing in rural areas suggests that rural populations are ageing at a faster rate than many of their urban counterparts e.g. the number of people aged 85 and over is growing faster in rural areas. The research also found that more than one third of rural residents aged 65+ have difficulties with activities of daily living (ADL)<sup>28</sup>. Despite significant advantages of living in the countryside as an older person, including longer life expectancy<sup>29</sup>, research by Age UK suggested that the low population densities and distances between residential and commercial centres can bring “*additional challenges for older people, including higher living costs, housing that is hard to heat and maintain, poor transport links and more limited social networks*”<sup>30</sup>. A report by the OECD (2010)<sup>31</sup> found that rural populations are “*becoming more diverse*” and there is a “*large amount of variability in the populations*”, meaning that they will require different service needs and that there is a “*fragmenting of demand*”.

- **Access to services:** the Countryside Alliance (2009) reported that people living in rural areas travel approximately 10,000 miles per year to access essential services, 43% more than residents of towns<sup>32</sup>. This is based on data from DEFRA's Statistical Digest of Rural England for people living in villages and dispersed areas<sup>33</sup>. The number of households with good transport access to key services or work has declined for town/fringe areas, villages and hamlets/isolated dwellings<sup>34</sup>. The Rural Services Survey by the Wales Rural Observatory (2013) identified significant differences in the availability of day care and other support services for the elderly, people with disabilities and vulnerable adults (drug and alcohol, homelessness, domestic violence and unemployed)<sup>35</sup>. The Scottish Community Care Forum identified "lack of transport" as a significant reason for low levels of access to support for carers in rural areas<sup>36</sup>. A research report on domestic violence services in rural Scotland summarised that those living in "isolated rural communities" experience great difficulty in accessing services, with availability of transport being one of the barriers<sup>37</sup>;
- **Choice:** a report by the OECD (2010) highlighted the lack of choice for rural residents. Where services are available, there is "*unsufficient local demand to have many providers*"<sup>38</sup>. The lack of competition can not only limit choice, but also impact on cost-effectiveness.
- **Unmet need in rural areas:** research commissioned from LG Futures by SPARSE-Rural (2011) summarised unmet need issues across public services identified by other research, highlighting gaps in service provision relating to homelessness, mental health, social care, childcare, drug treatment, support for carers, legal and financial advice and housing, as well as health and education services<sup>39</sup>. Research by the SCIE found that older people in rural areas are likely to be receiving "*lower levels of supportive services such as domiciliary care and meals on wheels than those living in urban areas, and the general take-up rates for welfare benefits seem to be lower than in urban areas*"<sup>40</sup>.
- **Impact of service changes in rural areas:** the development of personalisation in social care, for example, has been identified as presenting significant challenges in terms of costs, staff, choice and delivery in rural areas, although this also has some positive benefits for rural communities, including tackling social isolation<sup>41</sup>.
- **Service pressures caused by cuts in funding for local authorities:** Hindle and Annibal (2011) provided several examples of rural cost pressures, covering services such as library services, primary schools, rural bus services and highway maintenance<sup>42</sup>. Specific service examples include:
  - i. Hindle and Annibal (2011) suggested that rural libraries may be unsustainable in the light of current budget cuts: high fixed costs associated with library premises alongside mobile provision, new costs relating to adapting service provision to meet changing lifestyles and

expectations and meeting the demands of an ageing population, alongside digital requirements of younger consumers<sup>43</sup>;

- ii. A review of mobile libraries in Devon in 2013/14 resulted in stops being withdrawn on a number of routes and frequency of visits changing from two weeks to four weeks<sup>44</sup>. The library service is currently subject to a significant reorganisation due to requirements for further budget cuts<sup>45</sup>;
  - iii. Rural bus services and transport subsidies have been reduced in several council areas, according to research by Age UK<sup>46</sup> and the Campaign for Better Transport<sup>47</sup>;
  - iv. The UK Home Care Association reported that a survey of decisions by 111 councils showed that rural premiums had been reduced in relation to home care visits in one fifth of councils, with cuts leading to lower fee levels and shorter visit times. The survey also found examples of providers withdrawing from work in rural areas due to cost pressures<sup>48</sup>;
  - v. A survey by the Rural Services Network found that parks, leisure and environmental services were at high risk of cuts in rural authorities. The 2011 State of Rural Services Report found that rural authorities, *“have been forced to cut expenditure on maintaining parks and open spaces, and on sports facilities. This has led to staffing cuts and services being delivered less frequently and to a lower specification. Combined with cuts in bus routes this will make accessing leisure facilities very difficult for those who rely on public transport”*<sup>49</sup>.
- **Rural broadband connectivity:** lack of access to broadband and associated technologies has been identified as a significant issue for rural communities, covering individuals and businesses based in rural areas. Age UK reported that 23% of households in rural areas had no or only a slow broadband connection in 2010, compared with 5% of urban households<sup>50</sup>. The government has established a Rural Broadband Programme to be delivered by Broadband UK (BDUK), created within the Department for Culture, Media and Sport (DCMS). The National Audit Office (2013) reported that there are significant delays with implementing the programme and targets for access may not be met in some rural communities<sup>51</sup>.
  - **Rural poverty and rural deprivation:** a report on rural poverty in Scotland by the Poverty Alliance (2012) highlighted that, *“poverty remains an important dimension of rural life, albeit one that is often hidden and poorly addressed”*<sup>52</sup>. An assessment of rural deprivation by Norfolk Rural Community Council defined rural deprivation as *“spread out and hidden, making it harder to identify and address”*<sup>53</sup>. Take up of pension credits and free school meals by those who are eligible has also been found to be lower in rural areas<sup>54</sup>. However, some issues can disproportionately affect people in rural areas. A report by OCSI (2012)<sup>55</sup> on rural

deprivation in Wales reported on three main contributory factors to rural deprivation or disadvantage: resource deprivation (low income and housing access), opportunity deprivation (availability of services) and mobility deprivation (transport costs and inaccessibility of jobs, services and facilities).

- **Recruitment and retention:** a study on homelessness services in Scotland found that working in rural and remote localities “*poses specific challenges in terms of finding, training and retaining staff*”. Some of the issues identified included lower salary potential, lack of affordable housing, worker isolation, staff safety and distance from support staff<sup>56</sup>. A study on social care services reported “*difficulties in recruiting staff in rural areas*” in local authorities included in the research<sup>57</sup>;
- **Alternative service models in rural areas:** research commissioned by DEFRA<sup>58</sup> highlighted the potential for rural areas to adopt new or alternative delivery models to address the challenges of delivering services to rural populations. The report highlights numerous alternative models which have been adopted by community and voluntary sector (CVS) and other organisations, including social enterprises, mutuals and co-operatives, outsourcing, co-production and shared services across organisational boundaries. The report was not able to quantify specific cost benefits associated with these service models in rural areas, but identified that they can achieve “*economies of scale where they are co-located in an integrated way... co-locating a number of different services within one place and one delivery structure*”. The OECD (2010) highlighted similar mechanisms by which delivery issues in rural areas can be overcome, including aggregating demand through consolidation, co-location or merging similar services; adopting alternative delivery mechanisms through mobile services and the internet; using different types of providers; creating new services focused on more efficient delivery of outcomes; and improving quality and marketing<sup>59</sup>. In relation to specific services:
  - i. A recent study by the Arts Council (2012)<sup>60</sup> highlighted the growth in numbers of community libraries across local authorities in England, which will potentially have different funding and organisational arrangements with their local authority hosts. Community libraries are found in both urban and rural areas. The study found that one in six community library buildings, for example, were owned and managed by the community, rather than in buildings owned or managed by the local authority;
  - ii. A report on homelessness services in Scotland found support services need “*to be done differently*”<sup>61</sup> in rural areas – the report highlights the need for joined-up working and holistic approaches to service provision, with generic services provided locally in rural areas and specialist provision being delivered from area hubs;
  - iii. A separate report from Scotland considered issues relating to the co-location of rural services and sought to identify associated costs and

benefits of co-location. The study concluded that co-located services deliver the greatest benefits where they reduce distance required to access services but co-location is not a “one size fits all” solution – this will impact on service planning. It was difficult to draw conclusions on the cost-saving potential of co-locating rural services, as it was unclear for the services examined in the study how costs were being shared and therefore what savings can be inferred. The study recommended that more transparent cost accounting would be needed to facilitate cost comparisons<sup>62</sup>.

- iv. In relation to dementia services in rural areas, *“third and private sector organisations tend to be fewer and more fragile making it difficult to develop a mixed economy of care and build capacity for involvement of communities”*<sup>63</sup>;
- v. Community rail partnerships are supporting rail services at some of the 170 railway stations that serve isolated communities. These *“bring together a number of disparate interests who have an interest in the success of their local railway. The core membership includes the local transport planning authority (county or unitary councils in England), the train operator and the rail user group. Other members may include district, town or parish councils, Network Rail, National Parks, universities or heritage railways. A wide spectrum of supporters are drawn from local people, amenity groups, the Women's Institute, local traders and indeed anyone who wants to see improvements to their railway”*<sup>64</sup>.

## 5. Factors in Funding Formulae to Reflect Rurality and Rural Cost Pressures – Evidence from Outside England

### Examples of Rural Factors in Funding Formula

- 5.1 A review of funding formulae used to allocate resources for public services, particularly local government and health care, identified several examples of different approaches to classifying and compensating for rurality.
- 5.2 Approaches in Wales, Scotland and Northern Ireland are considered first, ahead of examples from Australia, New Zealand and Canada:
- The Welsh Assembly uses a factor called “*dispersion threshold*” in its funding distribution formula for the Local Government Revenue Settlement. Dispersion threshold is a measure “*designed to capture the additional time and distance costs associated with service delivery to dispersed communities*”<sup>65</sup>. Data is currently derived from the Census in 1991 and 2001 and dispersion threshold sizes range from 300 to 7,500. Funding is associated with the “dispersion threshold” for a range of services, including school meals, children and young people’s services, adult social care, refuse collection and recreation. Different funding streams use slightly different thresholds to define the level of dispersion which triggers additional funding<sup>66</sup>.
  - Some funding streams for local government services in Wales e.g. cultural services, also use a factor called “*settlement threshold*” which measures the total population in each authority either within or outwith settlements of a particular size<sup>67</sup>. Settlement threshold sizes vary from 1,000 to 50,000<sup>68</sup>;
  - Top-ups based on population density and population sparsity are used in the funding formula for police services in Wales (equivalent to the funding formulae for police in England). The population sparsity indicator of each police force is measured at output area level and identifies areas with very low population density in a weighted formula<sup>69</sup>.
  - The Scottish Executive Urban Rural Classification (SEUR) includes a measure of accessibility in distinguishing between accessible and remote small towns (population 3,000 to 10,000) and accessible and remote rural populations (population less than 3,000) – accessible towns or rural populations are those within 30 minutes (drive time) of a settlement with a population above 10,000<sup>70</sup>. These rural/urban distinctions are used in the funding formulae for aspects of

health services in Scotland, but there are also specific weightings for different elements of health services;

- The funding formula for health in Scotland has been subject to regular review through its Technical Advisory Group on Resource Allocation (TAGRA)<sup>71</sup>. For funding related to hospital-based services, regression analysis was originally used to estimate economies of scale linked to hospital size and associated measures of rurality and population size and an adjustment is included in the weighted capitation formula (Unavoidable Excess Cost Adjustment).
- In terms of funding allocated through rural factors for health care, research presented to the Remote and Rural Sub-group of the Technical Advisory Group on Resource Allocation for NHS Scotland in 2011 found examples ranging from 0.6% in Scotland (relative to 18% of its population classified as rural) to 3.2% in Northern Ireland (relative to 35% of its population classified as rural)<sup>72</sup>.
- There is also a remoteness adjustment for travel and clinic-based community health services included in the funding formula<sup>73</sup>. The source information for the adjustment was based on specific research into health visiting and district nursing services and was adopted for all similar travel intensive services that make up the community health budget<sup>74</sup>.
- A similar adjustment is used for GP practice remuneration in Scotland, where rurality/remoteness is measured by population density, population sparsity and the proportion of practices' patients living in rural areas<sup>75</sup>; There are also some specific funding elements based on remoteness e.g. the Scottish Distant Islands Allowance is used to pay a premium to specific categories of public service employees in Orkney, Shetland, Western Isles, Tiree, Jura and Islay<sup>76</sup>;
- For local authority funding through the Revenue Support Grant in Scotland<sup>77</sup>, which covers services such as education, social work, police and fire, roads and transport, leisure and recreation and cleansing and the environment, specific factors relating to rurality, sparsity and remoteness have been included in some of the funding blocks, as set out in the Grant Aided Expenditure (GAE) calculations<sup>78</sup>. Adjustments are related to primary indicators such as population dispersion and secondary indicators which are shown to affect demand or unit costs. For example:
  - i. Adjustment for primary school teaching staff which takes account of higher ratios of staff to pupils in rural areas. The adjustment has been derived mathematically from the relationship between past expenditure and staff/pupil ratios;
  - ii. Several funding streams include an adjustment providing additional funding to localities based on the proportion of the population living in settlements

where the population is less than 1,000 e.g. pre-school education, environmental health, consumer protection; and

- iii. Population dispersion (defined as a measure of the degree to which the population of an authority is spread across its area in relation to (main) settlements) is used in the formulae for school transport and waste collection, for example.
- A report from 2011 identified that the definition of rural commonly employed in Northern Ireland was based on the Interdepartmental Urban-Rural Definition Group's statistical classification and delineation of settlements. Using this measure, there is a "*recognition that settlements of less than 4,500 people are recognised as rural*"<sup>79</sup>. In allocating funding to local authorities, a sparsity adjustment is included in the development of the rates support grant formula which is based on population density<sup>80</sup>.
  - Health care funding in New South Wales<sup>81</sup> includes a factor based on the Accessibility/Remoteness Index for Australia (ARIA) as a predictor of need – this factor is based upon the distance people have to travel to service centres using road distance. The service centres were defined by population size and population size was assumed to be a proxy for the range of services which could be accessed. The ARIA measures remoteness and allocates all populations with an ARIA score and also categorises all locations as highly accessible, accessible, moderately accessible, remote or very remote based on the ARIA score<sup>82</sup>;
  - The ARIA score was also used in the Australian Standard Geographical Classification (ASGC-RA) to classify each Census district on the basis of its average ARIA score and was previously used by the Australian Government to administer programmes targeting rural and remote regions<sup>83</sup>. The ASGC has now been replaced by the Australian Statistical Geography Standard, although the remoteness elements are still calculated using the ARIA<sup>84</sup>;
  - In New Zealand, a comparison between actual historic costs of delivering health services in rural areas and measures of remoteness is applied as a top-slicing element to their population-based funding formula (PBFF)<sup>85</sup>.
  - In Canada, the Rurality Index of Ontario (RIO) combines 10 variables to identify a score for each community, with higher scores indicating a higher degree of rurality. This index relates to health services and the variables contributing to the index include travel time to nearest basic referral centre; travel time to nearest advanced referral centre; community population; number of active GPs; population to GP ratio; presence of a hospital; availability of ambulance services; social indicators; and weather conditions. RIO scores are used by the Ontario Ministry of Health and Long-Term Care to identify communities that are "*eligible for extra funding*" for specific programmes e.g. nursing community assessment visit programme<sup>86</sup>; and

- Another index used in Canada is the General Practitioner Rurality Index (GPRI), developed using 6 variables – remoteness from basic referral centre; remoteness from advanced referral centre; drawing population; number of GPs; number of specialists; and presence of an acute care hospital. The variables are weighted and summed on a 100-point scale<sup>87</sup>.

### Incorporating Rural Factors in Funding Formula

5.3 The literature review has also highlighted some of the difficulties in incorporating “rural factors” into funding formulae:

- Penno et al (2013)<sup>88</sup> reported that “*funding formulae offer a means to balance geographic disparities, although the process is fraught with the difficulty of differentiating legitimate factors which reflect genuine variation in need from spurious, supplier induced discrepancies in expenditure*” in their review of health funding formulae;
- A report by Minore et al (2008)<sup>89</sup> reported that, whilst there may be need for rural funding adjustments, “*very few jurisdictions have developed specific funding formulae to support rural health care services*”.

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