Measuring Rural Deprivation

Literature Review and Issues Arising

A Report to the Rural Development Advisory Committee

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Executive Summary

This study sets out to explore the widely held view among rural development practitioners that current approaches to measuring disadvantage fail to capture the extent and the complexity of rural disadvantage, and that current measures of disadvantage have an urban bias.

The first part of the study explores different approaches to defining the rural. A number of trends are identified within these approaches. The first is that population density is the most widely used definition of rural and the second that there is a growing trend to focus and use the extent and nature of settlement patterns while the third trend brings in the idea of context and specifically the inclusion in some definitions of some measure of distance from an urban centre. Current Irish rural typologies include consideration of population density, land use (particularly agriculture), employment patterns and distance from urban settlements. The researchers do not however, find a strong relationship between the various rural typologies and levels of relative deprivation and thus conclude that an absolute definition of rural is not helpful in the context of defining and measuring rural disadvantage.

The second part of the study explores the different approaches used to define disadvantage. It concludes that much of the discussions around disadvantage, poverty and indeed social inclusion have tended to focus almost exclusively on income poverty. This approach is found to be problematic for a number of reasons. Firstly, it focuses exclusively on the individual, it does not consider those at risk of poverty neither does it consider the broader aspects of quality of life and, particularly from a rural perspective, the issue of access to services. Nor indeed does it account for or address the issue of inter-generational poverty. The researchers find particularly at EU level that there is a move away from an exclusive reliance on income-related measures and that the EU has made provision for the identification of tertiary (national) measures of deprivation to complement the primary and secondary Laeken Indicators which focus exclusively on income-related measures such as the 'at-risk-of-poverty' and the 'consistent poverty' rates.

The study finds that in the absence of accessible, relevant and detailed information at a sufficiently local (Electoral Division) level, spatial measures of deprivation will have to continue to use indirect (proxy) data for the foreseeable future. Despite these difficulties the current Irish Deprivation Index (Haase & Pratschke, 2005) is found to perform well against the existing headline poverty rates.

Consultations with rural practitioners carried out as part of the study assisted in the identification of the distinct features of rural disadvantage in Ireland. These consultations also generated some suggestions in relation to how existing measures of disadvantage might be improved. One of the key issues associated with rural disadvantage emerging from these consultations is the issue of the 'lack of opportunities' open to individuals and communities because of their rural location. This view was found to echo that of Coombes (1995) who argues that people are deprived if they are excluded from activities that they wished to undertake because of firstly their personal attributes (health, education, etc.), secondly their possessions (jobs, income, etc.) and thirdly because of where they live, which supports or indeed restricts their ability to access a variety of opportunities and activities. The researchers conclude that this concept of 'lack of opportunities' is something that has not been adequately explored, or indeed incorporated into existing measures of rural disadvantage, either in Ireland or indeed in other countries. The remainder of the study elaborates on how this concept might be measured in an Irish context.

The concept of 'opportunities' or 'access to opportunities' is not something that can be easily measured; it cannot be taken directly from the Census of Population, nor indeed from any other existing data source. Opportunities do not depend on a single characteristic or attribute of an area, they instead describe the relationship between one area relative to another area or areas. These kinds of relationships may best be understood in terms of the variety of 'push' and 'pull' factors that exist between two or more areas. The best way to measure these in a structured manner is found to be through the use of gravity models.

Gravity models are based on Newton's theories of universal gravitation and work on the basis that the interaction between two or more entities - in this case, communities - is directly proportional to their size, and distances to one another. Gravity models have been successfully applied in a number of social contexts such as, migration, travel, and communication, but have seldom been used in research on social exclusion. One exception to this is a recent UK-based study which explores the link between access to public transport and social exclusion (McDonald, 2003), as well as a number of studies on 'food deserts'³. The researchers believe these studies provide good examples for measuring the relative attractiveness of one place to another in the context of improving our measures of rural deprivation.

The study concludes that the best way to measure access to opportunities in an Irish context is to commission two complementary studies; the first a micro-simulation study which establishes the effect which the location of a person's residence has on their ability to access a range of opportunities and, the second a gravity model which assesses opportunity deprivation at the geographical level. Both studies are briefly outlined below.

The Micro-Simulation Model in brief:

This study will focus on an examination of how location and personal attributes affect an individual's ability to avail of different opportunities (jobs, training, education and essential services) and how this is affected by their ability to access to public transport. The analysis will require extensive sample data and needs to be carried out at a regional level or a national level.

The study will involve a representative sample of the total population and will contribute to the development of additional national indicators which take into account the effect of access to opportunities on individuals and households. The measures will be complementary to the existing Laeken Indicators and will be particularly relevant to the monitoring of the National Report for Ireland on Strategies for Social Protection and Social Inclusion, 2006 – 2008 and the National Spatial Strategy (NSS) and the ability of government to spread the economic and social benefits of Ireland's economic growth in a regionally balanced way.

The Macro-Level Gravity Study in brief:

This study will use the characteristics of a particular area and the distances between it and other areas to determine the relative attractiveness of one area to another area. The study would be carried out nationwide at the Electoral District level and effectively provide a local measure of relative opportunities which can subsequently be included as an additional dimension in future deprivation indices.

The researchers conclude that were these two studies to be conducted they would provide a robust measurement of the concept of 'access to opportunities' and thus close a very significant gap in current measures of rural disadvantage.

³ 'Food Deserts' is the term that has recently been coined to describe mainly urban areas where people do not have easy access to healthy, fresh foods, particularly if they are poor and have limited mobility.

1 Introduction and Purpose of the Research

This work has been commissioned by the Rural Development Advisory Committee of Pobal with support of the area Partnerships (PLANET), Community Partnerships (CPN) and LEADER+ Groups (CLE) which was resourced through a LEADER+ inter-territorial project and funds from the Ireland Funds.

The overall purpose of the research is to map existing definitions, data and indicators of disadvantage, identify the gaps, and develop new (complementary) indicators, with a view to influencing future Government allocation of resources, in a manner which fully reflects the incidence of rural disadvantage.

The specific objectives of the research are to accomplish the following tasks:

- to examine and critique the definitions of 'rural' and of 'rural areas' used in Irish /EU contexts & recommend and negotiate a common definition to be used by policy makers and state bodies;
- to critique the measurement and definition of rural disadvantage and recommend new/additional indicators/sets of indicators of rural disadvantage where gaps have been identified, while building on existing work; and
- to validate and locally proof the application of new indicators in agreed geographic areas in alignment with how the rural areas are defined.

The Report is structured in eight chapters: Chapter Two reviews existing definitions of rurality as currently being applied throughout the OECD, US, and EU countries. The chapter finishes with some general remarks as to the most appropriate definitions in the Irish context. Chapters Three and Four provide a discussion of the theoretical underpinning of the study, first in terms of the appropriate conceptualisation of the terms poverty, deprivation and social exclusion and, secondly, how these concepts can best be measured in the real world. Chapter Five looks at the Irish Index of Relative Affluence and Deprivation (Haase & Pratschke, 2005) in the context of the theoretical discussion provided in the previous chapters. Chapter Six reports on the findings of the consultation with rural practitioners and highlights the current shortcomings in our conceptualisation and measurement of rural deprivation. Chapter Seven develops proposals of how best such identified shortcomings may be overcome in the future. Chapter Eight summarises the key findings and recommendations of the study.

2 A Review of Definitions of Rurality

This chapter provides an overview of the most commonly used definitions of rurality. The reason that we are concerned with how to understand rurality is twofold: Firstly, the way we define rurality has a profound impact on the scope and focus of any policies that are concerned with the development of rural communities. Secondly, the way we define rural may potentially have an effect on the measurement of poverty in rural Ireland. The main concern of this study is however the effect that the definition of rural may have on the measurement of rural deprivation.

What does rural mean in the Irish Context?

How one defines 'rural' has an inevitable and crucial effect on the design of policies concerned with the development of rural Ireland. It for example effects whether we include small towns and villages in our definition of rural or, is whether rural is understood to be exclusively linked to predominantly agricultural areas. Historically, both in Ireland and elsewhere, there has been a strong emphasis on the use of the land for agricultural purposes for an area to be considered rural.

However, in the face of an ever declining number of people in the developed world for whom agriculture provides their main income, definitions of rural that are exclusively linked to land use patterns have become questionable. Even in Ireland's most rural locations, the number of people who derive their income from farming is now small, and the majority of rural dwellers is engaged in the service or the manufacturing sectors.

Definitions of rural and rurality are clearly changing. Section 2.1 provides an overview of some of the commonly used definitions of rural in the European Union, in the OCED and in the United States. Section 2.2 shows the definitions utilised in the UK and Ireland and Section 2.3 shows a number of rural typologies developed for Ireland. The final section provides a brief discussion of the concepts used and draws some conclusion as to the appropriate definition in an Irish policy context.

2.1 Definitions of Rural (OECD, US, EU)

Approaches	Definition	Link to Population Density	Type of Scales utilised
OECD (1994) (at Local Level)	Rural is defined as areas with less than 150 people per square kilometre.	< 150 persons /km ²	Density
OECD (1994) (at Regional Level)	Defines <i>predominantly rural</i> where more than 50% of population live in local communities that can be described as rural. Defines <i>significantly rural</i> where 15-50% of	Percentage of population living in rural areas	Density associated with settlement patterns
EU (2003) 3 levels of urbanisation	population live in local rural areas. Defines an area as <i>densely populated area</i> where a population of more than 50,000 people lives in 'contiguous local authority units with a population density of more than 500 inhabitants per km ^{2'} . An <i>intermediate area</i> where a population of more than 50,000 living in local authority units with a density of 100 people per km ² A <i>sparsely populated area</i> is one which does not fit the criteria for densely populated and intermediate areas.	< 100 persons /km ²	Density associated with settlement patterns
Ballas (2003)	Urban if it has within its administrative boundaries "an urban agglomeration with a population larger than 500,000 inhabitants" and/or all regions with 65% of its population living in conurbations of 10,000 inhabitants or more. By default, all other areas were defined to be rural.	What is not urban	Density associated with settlement patterns
EUROSTAT	Defines rural areas as those with a population density with less than 100 people per km ² .	< 100 persons /km ²	
The World Bank Ferranti <i>et al.</i> (2005)	Study explores contribution of rural areas to development in Latin America and Caribbean Definition of rural area is based on population density and distance from urban areas.		Density and distance from urban areas
US Office of Management and Budget (2003)	Metropolitan (metro) and non-metropolitan (non- metro) areas metro areas as (1) central counties with one or more urbanized areas, and (2) outlying counties that are economically tied to the core counties as measured by work commuting. Non-metro counties are outside the boundaries of metro areas and are further subdivided into two types: <u>micropolitan areas</u> , centered on urban clusters of 10,000 or more persons, and all remaining "non core" counties.	< 10,000 persons	Density associated with settlement patterns and commuting patterns
US Census Bureau	rural areas comprise open country and settlements with, less than 2,500 residents. all territory located outside of urban areas and clusters	< 2,500 persons	Density associated with settlement patterns

2.2 Definitions of Rural (UK, Ireland)

Approaches	Definition	Link to Population Density	Type of Scales utilised
UK ODPM (2004) Urban and Rural Area Definitions, (London)	Urban areas are those settlements where the population is 10,000 or above; settlements < 10,000 are defined as rural . Further consideration of the sparsity of the population of the wider geographic area (measured at 3 levels - as an area with a radius of 10km, 20km and 30km). The population is considered to be sparse if it meets a minimum density level across all 3 distances.	< 10,000 people	Density associated with settlement patterns. Emphasis on the morphology of rural settlements (i.e. their physical <i>form</i>) and the wider geographic <i>context</i> of such settlements.
UK Office for National Statistics (1999)	Used 1991 Census data to classify 1991 Wards and 1998 Local Authorities into families of areas in which the residents share certain socio-demographic features. (This classification was not designed to define urban or rural areas but is sometimes used).		Density associated with settlement patterns and commuting patterns.
UK Countryside Agency Rural Services Survey (2000)	For the Rural Services Survey 2000 (RSS2000)16, a 10,000 population cut off point was applied to parishes but the population within the parish boundary was taken, with no use being made of Urban Settlement boundaries or their population counts. The main problem was that little contemporary data was collected for these units outside the Rural Services Surveys and the system of agricultural returns. Much of the contextual data dates back to the 1991 Census.	< 10,000 people	Density associated with settlement patterns and commuting patterns.
The Scottish Executive (2004)	 Areas with population of less than 3,000 Distinguishes between 'accessible rural' and 'remote rural'. Accessible rural: rural areas with less than 30 minute drive to an area with a population of 10,000 people or more. <i>Remote rural:</i> rural areas with a greater than 30 minute drive to an area with a population of 10,000 people 	< 3,000 people	Density associated with settlement patterns and drive time distances.
Ireland Walsh (2000)	District Electoral Divisions (DEDs) with no population centre above 1,500 people, with a population density below 150 per km ² , and which are not part of an urban district or borough, i.e., it broadly refers to open countryside and rural villages.	< 150/km ² and < 1,500 people	Density associated with settlement patterns.
Ireland Combat Poverty Agency (1999),	Open country or towns of less than 3,000 people	< 3,000 people	Density associated with settlement patterns.

2.3 Typologies of Rural areas

Typology Author	No of types	Types of Areas	Definitions of Areas					
1. Walsh (2000)	6	Peri-Urban Area	Close to urban areas, high population density, low reliance on farming, high levels of commuting to work.					
Ireland		Very Strong Area	Higher levels of farming, less 'urbanised' population, lower average education levels, lower female participation, higher level of manufacturing than services.					
rural EDs comprising 39% of population.		Strong Adjusting Agricultural Areas	High levels of farming, lower levels of transition to non-farming activities, experiencing difficulties adjusting to agricultural output restrictions.					
Spatial Strategy 2000-2006 <i>Includes</i>		Structurally Weak Areas	Disadvantaged, high levels of dependence on subsidised agriculture, higher levels of older farmers, small farms, number of farmers declining, lower levels of non-manufacturing employment.					
consideration of population, land use		Marginal Areas	More agriculturally disadvantaged than Type 4, high unemployment, clustered in remote areas of the West and North West.					
agriculture) and employment patterns		Highly Diversified Areas	'Post-agricultural' areas. Areas of natural amenity, high levels of tourism and recreation activities, higher numbers of non-farming residents migrating to region.					
2. Leavy (2001)	7	Declining, Peripheral	Mostly in peripheral areas of the west and north. Characteristics include: highest loss of employment (nearly 30 %), a high proportion of the workforce not gainfully occupied and a low level of female labour force participation.					
Focuses on Population /Employment Patterns and	n	Declining, Low Density	Mostly confined to the west and north-west. Population density is low and declining. On the one hand total and self-employment declined by 20 per cent approximately. Included in this was a drastic fall in numbers working in primary industry (40%) and farming (30%). The numbers of children under 15 also declined.					
distances from urban settlements		Declining, Farm Dependent Low Density	Areas of low population density and away from large urban centres. In aggregate, they contain approximately 6 per cent of both population and persons gainfully occupied and 24% of utilised agricultural area. These districts seem to be most dependent on farming. They have the highest proportion of both farmers (32%) and self-employed (44 per cent) in the workforce. On the one hand they experienced the largest decline of all groups in both population (11%) and in number of children under 15 (25%) in the period 1971 and 1996. On the other hand they experienced the greatest rise in participation of females in the workforce.					
							Medium density/ declining population	These districts occur mostly in the east and south away from areas of urban development. In aggregate they contain approximately 7 per cent of both population and persons gainfully occupied. They also contain approximately 20% of utilised agricultural area. Symptoms of decline in these areas were a fall in employment and in the number of children under 15.
		Medium density growing	These districts occur adjacent to the more densely populated districts They are situated mostly in the east, midlands, south and in the vicinity of Galway and Sligo. In aggregate they contain approximately 8% of both population and persons gainfully occupied. They also contain approximately 15% of utilised agricultural area. Population density in these districts, while lower than other groups, is double that in more remote and declining districts.					
		High density	High Population Density rural areas) are generally contiguous to the urbanised areas discussed in 1. They are most prevalent in counties surrounding Dublin and also adjacent to Cork city, Limerick/ Shannon, Waterford and other large towns. They also contain approximately 20 per cent of utilised agricultural area.					
		Large towns	Covers all significant urban areas in rural regions throughout the country and areas on the boundaries of cities i.e. Dublin, Cork and Limerick/ Shannon. In aggregate they contain approximately 16 % of total population.					

Typology Author	No of types	Types of Areas	Definitions of Areas
3. Frawley et al. (2005)	6	Urban area	High population density, low percentage of workforce in farming.
Ireland		Agricultural Area "Good Land"	High percentage of land under tillage.
Typology based on 18		Agricultural Area "Typical Galway	No distinguishing variable. Remainder of County Galway after other areas have been identified.
County Galway Rural Electoral Districts in 1991		Peri-Urban	Low dependency, low percentage farming, high percentage in professions and 3 rd level education, low percentage with primary education only, higher labour force participation.
agricultural data Focus on population		Forest/Marginal Land	High percentage of land under forests.
densities and land Use		Remote Area	High unemployment, high percentage small farms, high percentage unskilled, high percentage primary education only, high percentage rough graze.
4. The Countryside Agency & ODPM (2004)	6 or 4	Less sparse Small town and fringe	These definitions are based a description of the particular settlement type (dispersed dwellings, hamlet, village, small town, urban fringe and urban (which is defined as greater than 10,000
UK		Less sparse Village	population) in association with a sparsity score based on the number of households in surrounding hectare squares up to a
Urban and Rural Area Definitions, (London)	Urban and Rural Area Less spa Definitions, (London) disperse		distance of 30 km.
		Sparse Small town and fringe	
		Sparse Village	
		Sparse Dispersed	

Table 2.3 continued ...

2.4 Summary of Definitions and Typologies

Summarising the definitions applied throughout the OECD, US, EU, UK and Ireland, there are mainly three different approaches to defining the rural:

Definition Type	Description of Definition	Examples
1. Descriptive	As an objective category/physical entity. Most definitions are of this type	CSO/OECD/ EU definitions
2. Statistical	According to a number of statistical criteria: uni-variate and multivariate analysis	Mainly used by academics
3. Social Representation	Allows for different discourses/views: popular, professional, lay and academic On What it is that constitutes the rural is something that is contested	Social Researchers/ General Public

- Population density is the most widely used concept in definitions of rurality/rural areas.
- Land use is occasionally used as indeed is the idea of land that is built over and land that is not built over, although this is usually associated with some threshold population size, which often serves to distinguish between larger (urban) and smaller (rural) settlements.
- Another concern in some definitions of the rural relates to the context of a particular settlement; for example, one could find an urban centre within an essentially 'rural' area

leading to the apparently contradictory notion of a 'rural' town. Context can also relate to the broader settlement structure in which a rural place is located, for example, set within a number of villages or a mix of hamlets and isolated dwellings. The importance of context in terms of service delivery is reflected in the inclusion of measures of population 'sparsity' in the UK's local government revenue support grant formula.

- The term 'rural' has also been used to demote a strong connection with the land as a direct source of income of wealth generation. This is the view that is dominant within the social sciences.
- The trend in the definitions of rural would appear to be to place emphasis on what is termed 'the morphology of rural settlements (i.e. their physical *form*) and the wider geographic *context* of such settlements. This approach puts emphasis on the most enduring; i.e. physical, aspects of settlement.
- There are also a number of typologies of rural areas; at least three in the Irish context, one of which is Galway specific. These typologies focus on factors including population density, land use (particularly agriculture), employment patterns, and distance from urban settlements.

Overall, there is no clear answer emerging as to what definition of rural is most appropriate in the Irish debate: it depends on the context. A sociological study of rural lifestyles is likely to continue to apply a different definition of rural than a national development plan which aims at balanced regional development. What is clear, however, is that space is becoming less local, that the development of individual localities is becoming more entwined with their wider spatial context. It is thus logical that, when concerned with rural development, policies will have to take into account the functional relationship of spatial entities in such wider context. This trend is clearly evident from the various definitions to rural as outlined in the sections above.

Whilst definitions of rurality may have some merit in terms of describing an area in general terms and possibly giving some insight into its developmental needs, the degree of rurality is a poor indicator of the extent to which the people living in an area are experiencing poverty or deprivation. Neither the Walsh (2000) typology of rural areas and less so an alternative measurement of population density provide a strong differentiation with regard to an area's relative affluence or deprivation. The consultants thus conclude that absolute definitions of rurality are of limited value in the context of spatial deprivation indices or similar tools for resource allocations to respond to social needs.

Recommendations:

- **1.** Typologies of rural should be used mainly for descriptive purposes.
- 2. Key areas to be included in rural typologies would include settlement patterns (linked to population density) and some measure of context (distance from an urban centre). The closest current existing typology for Ireland is the Walsh 2000 typology.
- **3.** Absolute definitions of rural are not indicators of deprivation and are thus not meaningful in the context of any deprivation index.

3 The Concepts of Poverty, Deprivation and Social Exclusion

Poverty, deprivation and social exclusion are closely interrelated concepts which are often treated interchangeably. This section considers the various definitions of these concepts and examines some of the challenges associated with the measurement of these concepts and the consequences of these challenges for this research.

3.1 Defining Poverty, Deprivation and Social Exclusion

Deprivation Most research on deprivation starts with the definition given by Townsend (1979, 1993) which highlights the *relative* character of the concept by comparing how people experience their lives relative to the community they live in.

"People are relatively deprived if they cannot obtain, at all or sufficiently, the conditions of life – that is, the diets, amenities, standards and services – which allow them to play the roles, participate in the relationships and follow the customary behaviour which is expected of them by virtue of their membership of society." (Townsend, 1993: p.36)

This view is closely mirrored, although slightly extended, by Coombes *et. al.* (1995) who state that:

"The fundamental implication of the term deprivation is of an absence – of essential or desirable attributes, possessions and opportunities which are considered no more than the minimum by that society." (Coombes et al., 1995: p.5)

For many, deprivation is closely associated with poverty. Townsend, for example, sees poverty (or the lack of financial resources) as the major cause of deprivation, as shown in a continuation of above quotation.

"[People may be said to be in poverty] if they lack or are denied resources to obtain access to these conditions of life and so fulfil membership of society." (Townsend, 1993: p.36)

This is the approach used within the Irish National Anti-Poverty Strategy which states:

"People are living in poverty if their income and resources (material, cultural and social) are so inadequate as to preclude them from having a standard of living which is regarded as acceptable by Irish society generally. As a result of inadequate income and resources, people may be excluded and marginalised from participating in activities which are considered the norm for other people in society." (Government of Ireland, 1997)

While income poverty is undoubtedly an essential element of deprivation, an exclusive reliance on income poverty as a measure of deprivation is nevertheless problematic for the following reasons:

- (i) it assumes that the (only) unit of analysis is the individual,
- (ii) it assumes that deprivation should be measured solely in terms of outcomes as opposed to risks or conditions, and
- (iii) it does not consider broader aspects of quality of life, such as, for example, health, environment, access to transport and services and general life opportunities,
- (iv) it narrows the focus of policy.

Poverty

These wider issues have, since the social policy debates of the 1980s, increasingly been brought together under the term social exclusion.

Social Exclusion "The concept of social exclusion seems originally to have been proposed by social theorists as a portmanteau term to describe the coexistence and co-development of a number of social problems (such as unemployment, poor educational attainment, poor housing, poor health, low uptake of social service provision, failure to participate in political processes etc.) associated with the fragmentation of traditional social structures and relations, the decline in participation in the normal institutions and processes of society and the growth of deprivation amongst particular social groups. These problems were seen as being both related to one another and related to, though not completely explained by, traditional notions of relative or absolute poverty." (MacDonald, 2003).

In summary, traditional measures of poverty have focused principally on the lack of material wealth and its consequences (Townsend, 1979, 1993), whilst the concept of social exclusion is seen as emphasising the importance of a wider set of inter-related social factors. The subject of this study – how to measure rural deprivation – is clearly related to this wider concept.

3.2 Conceptual Issues

3.2.1 The Focus of Deprivation and Poverty Policy

Emphasis on 'Counting the Poor'

Much of the debate on poverty and social exclusion over the past two decades has been characterised by an approach that focuses on the 'individual'. This includes not only the development of appropriate transfer mechanisms in the tax and social welfare systems, but extends to the emphasis on counting individual 'throughputs' to demonstrate the effectiveness of area-based initiatives and an emphasis on 'counting the poor' in the construction of spatially based deprivation indices. The argument being if one can only precisely predict the number of people suffering deprivation in any one area, then one can direct the necessary resources to people in these areas and thus minimise or even solve deprivation. Indeed, methodological changes in recent deprivation indices in the United Kingdom have largely aimed at providing ever better estimates for the number of poor people in any one location⁴.

More recently questions in relation to the value of 'counting the poor' have begun to emerge. Most commentators agree that the majority of poor people do not live in designated disadvantaged areas - at least not if designated areas are defined narrowly enough to make any sense – thus rendering any deprivation indices that are utilised primarily to target the poor as deficient. It follows that the main mechanism for targeting the poor (as individuals) must be the tax and social welfare system, with local area-based initiatives functioning only as complementary interventions. There is indeed a growing recognition that local area-based initiatives might better be suited to enhancing the infrastructure and services for particular communities rather than the primary tool for targeting poor individuals.

3.2.2 Who exactly is deprived?

Individual, Group, or Community The second issue is the question of who or what exactly is deprived. The question as to whether deprivation is suffered by individuals, groups, or communities is a difficult one. The dominant view amongst most commentators⁵ has been that it is the individual who is deprived and as such it is the individual that is the proper subject for a definition of deprivation and indeed target for supports to tackle deprivation. This view does not, however, take into account the fact that an individual's experience is also generally shaped by i) household factors (e.g. race and class) and ii) wider neighbourhood factors (e.g. broader environment factors and social conditions).

⁴ This trend is particularly followed by successive UK deprivation indices, starting from the 1981 DoE Index, to the 1991

Robson Index and the current Index of Multiple Deprivation (2001).

^b c.f Robson (1995), Burchard *et al.* (2001), Noble *et al.* (2000, 2001)

There is a broad and growing body of international research in existence which, (through the adoption of multilevel modelling approaches), has shown the influence of neighbourhood characteristics on individuals. This research has shown that characteristics which are shared by groups of individuals (e.g. in particular schools, neighbourhoods, communities, etc.) have an impact on an individual's level of well-being, over and above what could be predicted from an individual's socio-economic characteristics alone. The size of neighbourhood effects are generally small when compared to the individual-level effects. Nonetheless, they are statistically and substantively significant. They therefore shed some light on the question of why after years of tackling social exclusion through individually targeted responses certain communities continue to experience substantial levels of deprivation.

Madanipour *et al.* (1998) in their work propose a definition of social exclusion that emphasises the notion of socially excluded neighbourhoods:

"[Social exclusion is] a multi-dimensional process, in which various forms of exclusion are combined: participation in decision-making and political processes, access to employment and material resources, and integration into common cultural processes. When combined, they create acute forms of exclusion that find a spatial manifestation in particular neighbourhoods."

The relationship between spatial location and social exclusion is clearly highly complex (Power and Wilson, 2000). Not only is there a tendency for social exclusion to be clustered spatially, but the properties of location and accessibility are seen as fundamentally important in determining the ability of individuals to participate in normal social institutions and processes (MacDonald, 2003).

3.2.3 Actually or potentially deprived?

Deprivation Outcomes v. Risks of Deprivation The third question, closely linked to the previous one, relates to whether it is right to consider only those who are actually deprived or whether definitions of disadvantage should include consideration of those 'at risk' of deprivation. Most definitions and most commentators emphasise outcomes; i.e. the actual experience of deprivation by individuals or by households. However, as Coombes *et al.* note, in practice, such a limited focus may not be sufficient if we are to understand the cyclical nature of deprivation.

> "Individuals who are poor are also more likely to live in unsatisfactory housing conditions and to suffer health problems, thereby endangering their employment status and thus reinforcing their poverty. In this way, each outcome is also a condition which makes the sufferer more vulnerable to other aspects of deprivation...The tendency for individuals to thus experience more than one form of deprivation has been simplified in the term multiple deprivation.." (Coombes et al., 1995: p.7)

A similar view is taken by Cook *et al.* (2000) who argue that in order to reflect the cyclical nature of deprivation both outcome and 'at risk' measures of deprivation should be included in any index of overall deprivation. To this end, they include two types of indicators: the first considers groups of people thought to be 'at risk' of poverty (e.g. the unemployed), the second looks at outcome measures, such as housing tenure, car ownership etc. which indirectly measure the extent of actual deprivation.⁶

Haase and Pratschke (2005), in their work however, question the validity of distinguishing between measures of outcomes and at risk of deprivation in the context of spatial analysis. They point out that in the context of spatial analysis all indicators are probabilistic in nature:

⁶ The arbitrariness of the distinction between risks of poverty and poverty outcomes is further illustrated by the fact that some commentators treat the unemployment rate as a poverty outcome indicator (e.g. SAHRU 1998, Noble 2005), while others treat the same variable as an indicator of risk of poverty (Cook *et al.* 2000, Haase & Pratschke 2005).

The Probabilistic Nature of Spatial Indicators "We know that unemployed people are more likely to be poor; therefore we also know that areas with high unemployment rates will, all other things being equal, tend to have a larger number of poor people residing within them. However, we do not include the unemployment rate in our index as an estimate of the number of poor people residing in a given area; what matters is that, at the spatial level, living in an area with a higher unemployment rate increases the likelihood that any given individual or family will be disadvantaged." (Haase & Pratschke, 2005: p.45)

3.2.4 An Inclusive Definition and Approach to Deprivation

In summary, definitions of and approaches to deprivation must go beyond considerations of both income poverty and the individual. They must include consideration of the comparisons of the experience/s of individuals, groups and communities against the prevailing social norms. They must reflect the fact that socio-economic context has an impact on people's quality of life and that neighbourhood affects really do exist. Finally, as it becomes increasingly clear that deprivation indices are inappropriate tools to target poor individuals, but derive their *raison d'être* from their ability to inform initiatives aimed at the level of communities, they should not focus exclusively on the outcomes of poverty alone, but must relate to a broader definition of social exclusion and bring in the notion of those living at risk of poverty.

It is interesting to note that the (UK) Social Exclusion Unit recently refined its official definition of social exclusion to add greater emphasis on the dynamic or cumulative effects and (lack of) full participation in society:

"The term 'social exclusion' refers to more than poverty or low income, but it is closely related to them. It is used to describe a number of linked problems such as unemployment, poor educational achievement, low incomes, poor housing, physical barriers and bad health which tend to have a cumulative and reinforcing effect on each other, preventing people from fully participating in society." (Social Exclusion Unit, 2002).

And in a similar broad fashion, the European Commission (1997) has defined social exclusion as:

"...an accumulation and combination of several types of deprivation which go beyond poverty to social exclusion: lack of education, deteriorating health conditions, homelessness, loss of family support, non participation in the regular life of society, and lack of job opportunities".

3.3 Rural Deprivation

Rural deprivation by its nature and the nature of rural areas is very different to urban disadvantage. Haase & Pratschke (2005: p. 7) describe the distinctiveness of rural deprivation in the following terms:

"Unlike their manifestation as unemployment black-spots in urban areas, long-term adverse labour market conditions in rural areas tend to manifest themselves either in agricultural underemployment or in emigration. The former occurs due to the strong social incentives that encourage farmers to maintain small landholdings, even where these do not provide a full income. Moreover, individuals who are unable to find paid employment in disadvantaged rural areas may withdraw from the labour market in order to assist a relative engaged in farming. Where agricultural employment is scarce, long-term adverse labour market conditions generally lead to emigration. Emigration is also, and increasingly, the result of mismatches between education and skill levels, on the one hand, and available job opportunities, on the other. In both cases, the (rural) unemployment rate is likely to vastly understate the real extent of labour market disadvantage".

In general, little attention has been paid to the identification and examination of the distinctive features of rural deprivation, poverty and social exclusion, and again in relation to how these might actually be measured. Commins (2004) in his work notes that earlier research tended to focus on identifying 'poor areas', 'poor communities', and 'poor farmers' but did not answer the following key questions:

- "What, if anything, is distinctively different about poverty in rural areas?
- Who within rural communities face disproportionate risks of poverty and what factors affect their life chances?
- How is poverty generated and reproduced?" (Commins, 2004: p.60).

Commins in his work identifies some of the principal characteristics of rural poverty, including its invisibility, its tendency to be widely dispersed, a perception that rural life is 'problem-free', the out-migration of younger people, a high proportion of older people, and a high level of property ownership which, although it accords status, often masks the existence of low farming incomes in particular.

Shaw (1979), cited in Asthana *et al.* (2002) identifies some of the key features of rural disadvantage as:

- **resource deprivation**, e.g. low income and lack of adequate housing;
- **opportunity deprivation**, arising from lack of availability of health, education and recreational services; and
- **mobility deprivation**, i.e. the lack of transport and the inaccessibility of jobs and services.

The first feature is common to both rural and urban locations, the second and third are more specific to rural type locations. Asthana *et al.* also make the point that any study of rural deprivation requires both an objective measurement and a measurement of how individuals perceive and experience life in rural areas. They conclude that many indicators of disadvantage fail to identify the specific needs of, and issues for rural areas.

Evidence of the failure of existing indicators of disadvantage to adequately identify rural deprivation can be found in the work of Frawley *et al.* (2000) who, when they studied the incidence and features of low income farm households, found that "*low-income farm households as a single group were indistinguishable from all farm households on a basic lifestyle deprivation index*" (cited in Commins, 2004: 65). This study also found that low income farm households had lower levels of deprivation than low income households nationally. Frawley suggests that possible reasons for the lower level of (identified) deprivation among low income farm households, compared to low income households in general, might be linked to the types of deprivation indicators used, which included possession of strong footwear and a waterproof coat. Possession of these items on a farm would be an absolute necessity and as such they do not offer a very suitable indicator for measurement of deprivation in rural locations. Another example of essential items in a rural area in the absence of public transport might for example be a car, while a car in an urban area could be considered a non-essential or even luxury item.

There are clearly differences in the levels and types of deprivation in rural and in urban areas. This in turn raises questions about i) what indicators should be used to measure different types of disadvantage and ii) whether different indicators should be used to measure deprivation in rural and urban areas. Noble & Wright (2000, cited in Commins, 2004) in their work acknowledge that it may be necessary to treat rural deprivation separately from urban deprivation. They also, however, argue that some comparability between urban and rural areas is required, particularly in relation to the targeting of area-based 'regeneration' funds and as such recommend the use of both i) integrated studies that distinguish between rural

and urban areas, and ii) indicators that are common to both, such as income levels (weighted for rural sparsity).

Interestingly, the call for greater acknowledgement of the specifically rural dimensions of deprivation has now also surfaced within the EU. The 2004 Joint Report on Social Exclusion states that *'only a few* [of the EU15] *Member States address the problems of poverty and social exclusion in rural areas'*, and the EU has recently commissioned a large-scale study on poverty and social exclusion in rural areas (EU VT/2006/001). The specification to the tender of this study states that *'relatively little research has been dedicated to social exclusion and deprivation in rural areas'* and that *'indicators for access to employment, goods and services are less developed than those measuring monetary poverty or labour market participation.'* The invitation to tender also states that:

"The study will choose a concept / classification of rural areas that is underpinned by appropriate definitions and operationalisations and will use as far as possible EUharmonised data sources. On this basis, the study will describe and assess the phenomenon of poverty and social exclusion in the EU's rural areas, clearly indicating the operational concept of rural areas that is being used; then assessing the structural factors, particularly the socio-demographic characteristics of the resident population, out-migration, the sectors of economic activity, the degree of isolation or remoteness of the area, lack or insufficient provision regarding the quality, quantity and accessibility of public and private services, and the level of material deprivation." (EU Invitation to Tender VT/2006/001).

This study commissioned by the RDAC is therefore clearly timely in terms of contributing to the wider debate on the definition and measurement of rural disadvantage at an EU level.

A Critique of Prevailing Definitions of Deprivation

Deprivation is commonly defined as a relative concept, often closely associated with poverty. Much of the debate on poverty and social exclusion has tended to focus on income poverty and at the level of the 'individual'. This is problematic for a number of reasons:

- (i) it assumes that the (only) unit of analysis is the individual,
- (ii) it assumes that deprivation should be measured solely in terms of outcomes as opposed to risks or conditions, and
- (iii) it does not consider broader aspects of quality of life, such as, for example, health, environment, access to transport and services and general life opportunities,
- (iv) it does not address the issue of inter-generational poverty
- (v) it narrows the focus of policy.

Recommendations

- 1. Definitions of and approaches to deprivation need to go beyond income poverty and include consideration of the experience of individuals, groups and communities in comparison to the prevailing social norms.
- 2. Definitions of disadvantage must take into account the fact that the socio-economic context has an impact on people's quality of life and that neighbourhood affects do exist.
- 3. The issue of access to opportunities is one that needs to be explored particularly in the context of developing a better understanding and measurement of rural disadvantage.

4 Measuring Deprivation

This section contains an examination of how poverty, deprivation and social exclusion are actually measured and the various (spatial) levels at which the different measures of deprivation operate. While focussing mainly on the substantive results from the Irish context, we also discuss some of the most recent developments in relation to measures of deprivation in the UK and the EU.

4.1 Measuring Disadvantage at the Individual Level

Much of recent developments in the measurement of poverty and deprivation in Ireland have followed an increasingly co-ordinated approach across the EU. The work of the Combat Poverty Agency (CPA, Ireland) and the research it commissioned from the Economic and Social Research Institute (ESRI) both reflect this movement, as well as contributing to conceptual development at European level.⁷

Until 2001, estimates for the number of people living in poverty in Ireland where derived from the *Living in Ireland Survey* (ESRI). In 2003 the survey was replaced by the *European Survey on Income and Living Conditions* (EU-SILC), which is now conducted annually by the Central Statistics Office (CSO).

4.1.1 The 'At-Risk-of-Poverty' and 'Consistent Poverty' Rates

Combat Poverty distinguishes between two types of poverty: relative poverty and consistent poverty. Whether someone is living in relative poverty is determined by comparing their income to a particular income threshold. If they are below this threshold, they are deemed to be experiencing poverty. Generally, the threshold is set at either 50%, 60% or 70% of median income.

The 'At-Riskof-Poverty' Rate "People who are living below a particular income threshold. The standard threshold adopted by the European Union is below 60% of median income. Median income is the middle point of the income distribution, i.e. the middle point if all incomes were lined up, from the lowest income to the highest income." (CPA, Strategic Plan, 2005-2007)

Consistent poverty is than measured as a combination of the 'At-Risk-of-Poverty' rate and the lack of essential household items.

The 'Consistent Poverty' Rate "A person is said to be in consistent poverty when he or she has both a low income and lacks at least one of a number of specified basic necessities such as warm clothes, adequate food and heating." (CPA, Strategic Plan, 2005-2007)

4.1.2 Measuring Social Exclusion

Social exclusion is defined in terms of being denied opportunities considered to be the norm in society.

Social Exclusion [Social exclusion] is "the process whereby certain groups are shut out from society and prevented from participating fully by virtue of their poverty, discrimination, inadequate education or lifeskills. This distances them from job, income and education opportunities as well as social and community networks and they have little access to power and decision-making bodies." (CPA, Strategic Plan, 2005-2007)

⁷ The relevant surveys are the *Living in Ireland Survey* (ESRI, 1999), and the EU-wide *Survey of Income and Living Conditions* (EU-SILC).

In terms of operationalising the measurement of social exclusion, the Laeken European Council (2001) endorsed the first set of 18 common statistical indicators, which will allow monitoring in a comparable way across member states' progress towards agreed EU objectives in relation to poverty and social exclusion. The 'Laeken Indicators' cover four dimensions of social exclusion: financial poverty, employment, health and education. The indicators are further defined in the context of a three tier structure: (primary) headline indicators, (secondary) support lead indicators and other dimensions, and (tertiary) indicators expressing specific national concerns. The primary and secondary indicators are:

- Primary Laeken Indicators
- At-risk-of-poverty rate by various classifications
- Inequality of income distribution: (S80/S20 quintile share ratio)
- At-persistent-risk-of-poverty rate by gender (60% median)
 - Relative at-risk-of-poverty gap
 - Regional cohesion (dispersion of regional employment rates)
 - Long term unemployment rate
 - Persons living in jobless households
 - Early school leavers not in education or training
 - Life expectancy at birth
 - Self-defined health status by income level

Secondary Laeken Indicators

- Dispersion around the at-risk-of-poverty threshold
- At-risk-of-poverty rate anchored at a moment in time
- At-risk-of-poverty rate before social transfers by gender
- Inequality of income distribution: Gini coefficient
- At-persistent-risk-of-poverty rate by gender (50% median)
- Long term unemployment share
- Very long term unemployment rate
- Persons with low educational attainment

At-Risk-of-Poverty-Rate The key definition of interest here is the **at-risk-of-poverty rate**: This is the share of persons with an equivalised income below a given percentage (usually 60%) of the national median income. It is also calculated at the 40%, 50% and 70% income thresholds for comparison purposes. The rate is calculated by ranking persons by equivalised income from smallest to largest and the median or middle value is extracted. Anyone with an equivalised income of less than 60% of the median is considered at-risk-of-poverty at a 60% level.

NAPS Indicators At a national level, data from the EU-SILC will also be used to monitor and evaluate progress towards achieving the targets set out originally in the **National Anti-Poverty Strategy** (NAPS) and more recently in the National Report for Ireland on Strategies for Social Protection and Social Inclusion, 2006-2008. The NAPS was initiated by the Government after the 1995 United Nations Social Summit in Copenhagen, Denmark. The strategy, launched in 1997, sets out the extent of poverty, identifies the main themes, and formulates strategic responses to combat poverty in Ireland. The strategic aims of the NAPS fall into five key areas:

- Educational Disadvantage
- Unemployment
- Income adequacy
- Disadvantaged Urban Areas
- Rural Poverty

The key NAPS indicator derived from EU-SILC is the consistent poverty measure, which combines relative income measures with a lack of what are considered to be basic resources.

Consistent Poverty The **consistent poverty** measure looks at those persons who are defined as being at-risk-ofpoverty and assesses the extent to which this group may be excluded and marginalised from participating in (consumption) activities which are considered the norm for other people in society. The identification of the marginalised or deprived is achieved on the basis of a set of eight basic deprivation indicators:

- No substantial meal for at least one day in the past two weeks due to lack of money
- Without heating at some stage in the past year due to lack of money
- Experienced debt problems arising from ordinary living expenses
- Unable to afford two pairs of strong shoes
- Unable to afford a roast once a week
- Unable to afford a meal with meat, chicken or fish (or vegetarian equivalent) every second day
- Unable to afford new (not second-hand) clothes
- Unable to afford a warm waterproof coat

An individual is defined as being in 'consistent poverty' if they are:

- Identified as being at-risk-of-poverty and
- Living in a household deprived of one or more of the eight basic deprivation items listed above (Note that it is enforced deprivation that is relevant in this context. For example, a household may not have a roast once a week. The household is classified as deprived of this basic indicator only if the reason they didn't have it was because they could not afford it).

4.1.3 Substantive Findings

Based on the most up-to-date figures (2002), the European Commission states:

Risk-of-Poverty: EU wide "The fight against poverty and social exclusion remains a major challenge for the European Union and its Member States. The numbers affected by poverty and social exclusion across the Union are very significant, with more than 68 million or 15% of the EU population living at risk of poverty in 2002. They range from 10% or less in the Czech Republic, Sweden, Denmark, Hungary and Slovenia and 20% or more in Ireland, the Slovak Republic, Greece and Portugal." (European Commission, 2005: p.8)

With regard to the situation and trends in Ireland, the report further states:

Risk-of-Poverty: Ireland "With GDP growth rate in 2003 at around 3.7% and employment growth at 2.6%, the lrish economy has performed robustly despite the recent economic slowdown. Unemployment remains significantly below the EU average, at 4.6% of the labour force in 2003, with long-term unemployment also remaining low, at 1.5% of the labour force in the same year. Analysis of poverty trends shows that the national 'consistent' poverty measure continues to fall, from 8% in 1998 to 5% in 2001. However, over the same period the 60% risk of poverty indicator has risen from 19% to 21%, the highest level in the EU, indicating continued income disparities affecting in particular elderly people, large families and lone parents – and, hence, children. Life expectancy remains low relative to other EU countries and affordability of housing and homelessness continue to be a problem." (European Commission, 2005: p.63)

This measure thus provides us with a first substantive view of the extent of deprivation as it persists in Ireland in 2002. It needs to be born in mind, however, that the measure is based on a sample survey and represents a purely individual measure of deprivation. Furthermore, the measure is largely defined as an income measure, with no consideration given to, for example, health outcomes, educational or job opportunities or life chances in general.

4.2 Measuring Spatial Disadvantage

A good overview of the issues that need to be addressed in deriving regional indicators of social exclusion and poverty is contained in a recent background study undertaken by the University of Sienna for the European Commission (EU 2003). The study sets out to address a number of issues or challenges:

- (1) Identifying special features and requirements of the system of indicators of poverty and social exclusion for use at the regional level.
- (2) Choosing appropriate units of analysis.
- (3) Describing a practical strategy for measuring poverty and social exclusion at the regional level.
- (4) Illustrating the recommended strategy concretely, with necessary technical detail on the basis of real statistical data.
- (5) Constructing income poverty-related indicators appropriate for the regional level.
- (6) Incorporating with increased emphasis non-monetary dimensions of deprivation to complement indicators of income poverty.
- (7) Extending indicators normally produced at the national level to the level of regions going down to NUTS 2 level, then to NUTS 3 level and even beyond.

The study does not involve itself in a discussion of the conceptual issues of how poverty and deprivation should be measured. Instead, the study takes as its point of departure the methodological framework used for defining the indicators of poverty and social exclusion endorsed at Laeken (i.e. those reflected in the EU and CPA definitions outlined above) and poses the question to what extent these indicators can be applied at various spatial levels, either using EU-wide or national data sources.

The most interesting findings can be summarised under two areas:

Firstly, the study finds that, 'ordinary poverty rates' can only reliably be produced at NUTS 1 and NUTS 2 levels⁸. Within the types of surveys available (Household Budget Survey (HBS), European Community Household Panel (ECHP), or subsequently EU-SILC), the sample sizes are too small to provide useful information for estimation at a more local level, even after consolidation of the data over a number of years. The computation of 'ordinary poverty rates' at NUTS 3 level depends on whether respective countries implemented coding of the survey data to this level. In Ireland, 'ordinary poverty rates' may be computed at NUTS 3 level, i.e. the eight Regional Authorities as established since 1994. A detailed analysis of NUTS 3 level poverty rates is contained in Watson *et al.* (2005).

Secondly, the production of estimates at NUTS 4 and NUTS 5 levels requires econometric models. In general terms, these models involve imputing the required dependent variables – such as poverty measures – to areas or to individual households in a large data set such as a population census, essentially on the basis of a regression model fitted from a small-scale survey (containing common covariates and the required dependent variables). Examples of this type of application include the UK Index of Multiple Deprivation (UK) and a Small Area Estimation for Albania.

As pointed out, the EU (2003) study confines itself from the outset to the operationalisation of what it calls the estimation of 'ordinary poverty rates' and hints only in a cursory note to the problematic nature of using simple aggregations of individual-level values as area indicators:

³ The regional classifications are based on the NUTS (Nomenclature of Territorial Units) classification used by Eurostat. For Ireland, the following classification applies:

NUTS 1 covers the whole of the Republic of Ireland;

NUTS 2 describes the Border, Midland and Western (BMW) Region and the Southern and Eastern (SE) Region;

NUTS 3 describes Ireland as the eight Regional Authorities: Border, Midland, West, Dublin, Mid-East, South-East, Mid-West and South-West;

NUTS 4 describes the 32 Local Authorities

NUTS 5 is represented by the 3422 Electoral Divisions which make up the reporting units of the Census of Population.

"An important question is the extent to which regional deprivation can be defined as a self-contained concept, different from individual deprivation. The important addition to the set of Laeken indicators would be the incorporation of indicators defined and measured at the area level in order to identify, as it were, the 'territorial reality' of the region. These indicators are not necessarily simple aggregations of individual level values. It is this sort of indicators which underpin area-based policies that have become a common part of some governments' approach to tackling social exclusion." (European Commission, 2003: p.15)

Unfortunately, there is a danger that the debate about the appropriate conceptual basis of spatial deprivation indices might be more concerned with the operationalisation of the estimation of 'ordinary poverty rates' at greater levels of spatial disaggregation rather than discussing the basis of the concepts, and particularly their over-reliance on individual measures of (income) poverty. This is particularly the case in Ireland, where the emphasis on income poverty would appear to have been comparatively greater than at EU level in general.

4.3 Measuring Poverty and Social Exclusion in Rural Areas

The fact that the EU has recently commissioned a major study on the measurement of poverty and social exclusion in rural areas (Invitation to Tender VT/2006/001) is a clear indication that there are at least some concerns at EU level about the appropriateness of poverty indicators predominantly based on the used of income measures. Interestingly the Terms of Reference for the new EU study closely resembles the objectives of this study, the only difference being a focus in the EU study on an EU-wide application:

"The study will choose a concept / classification of rural areas that is underpinned by appropriate definitions and operationalisations and will use as far as possible EU-harmonised data sources. On this basis, the study will describe and assess the phenomenon of poverty and social exclusion in the EU's rural areas, clearly indicating the operational concept of rural areas that is being used; then assessing the structural factors, particularly the sociodemographic characteristics of the resident population, out-migration, the sectors of economic activity, the degree of isolation or remoteness of the area, lack or insufficient provision regarding the quality, quantity and accessibility of public and private services, and the level of material deprivation. The study will also examine the impact of policy measures addressing these issues, in particular those taken in the context of regional or rural development programmes launched with the support of the EU Structural Funds. On the basis of this assessment, the Contractor should identify and closely examine a few best practice examples." (VT/2006/001).

If we take together the past experience with poverty indicators in Ireland, the agreement on the Laeken indicators, the current drive towards the application of the Laeken indicators over a wider policy arena, the necessity of indicators to be comparable across Europe, the drive to extend the analysis of social exclusion beyond the concept of income poverty, and a growing awareness of the shortcoming of the present indicators in adequately capturing rural deprivation, we can outline the requirements which our work will need to comply with to have some impact on the future framing of the measurement of social exclusion in rural areas:

- 1. The Laeken indicators are key to the EU's measurement of poverty and social exclusion.
- The Laeken indicators are primarily designed to provide headline indicators at national (NUTS 1) and regional (NUTS 2) level. Even NUTS 3 (sub-regional/county) level data will not be generally available.
- 3. There is recognition at the EU level that the key headline indicators, i.e. the 'at-risk-ofpoverty' rate and the persistent 'at-risk-of-poverty' rate, both reflect concepts of income poverty taken on their own, are insufficient to capture the full extent and nature of social exclusion.

- 4. The set of Laeken indicators extends beyond income-based measures of poverty, but a single index of relative affluence and deprivation has not yet been developed at this level.
- 5. Attempts are currently being made to develop comparable (Laeken) indicators beyond NUTS 2 level, with a strong wish that such comparably indicators be based on harmonised EU-wide data sources. This will, at its best, be realisable only at NUTS 3 (county/local authority area) level.
- 6. Attempts are currently being made at EU level to conceptualise rural deprivation and to include such considerations into a regional/area index.
- 7. There is an expectation that new indices that are being developed at greater levels of spatial disaggregation will be able to be correlated backwards to the existing/established poverty measures.
- 8. There is scope for tertiary measures to be developed at national level to complement the higher level Laeken indicators.

The above analysis in turn raises the possibility that work undertaken at national level to conceptualise the measurement of social exclusion in rural areas could, if properly linked into the above points, make some impact at both national and EU levels.

A Critique of Existing Measures of Rural Deprivation

- 1. The 'at-risk-of-poverty' and 'consistent poverty' rates are predominantly income-related poverty measures defined at the level of the individual. Taken on their own, these measures do not fully describe the extent of social exclusion at the spatial level.
- 2. In Ireland, there has been an over-reliance on the two income-related poverty measures. Recent trends in the EU are calling for a stronger focus on non-income related indicators, including health outcomes, educational or job opportunities and life chances. This is of particular importance in measuring social exclusion in rural areas as income-related measures, if taken on their own, are likely to exhibit an urban bias.

5 The Irish Index of Relative Affluence and Deprivation

This chapter provides a brief outline of the latest Irish Index of Relative Affluence and Deprivation (Haase & Pratschke, 2005). The chapter also includes an examination of the methodological issues and challenges underpinning the index's construction. This is followed by a validation of the index against the available Laeken indicators and an assessment of the Walsh typology of rural areas using the index in terms of its ability to capture different levels of affluence and deprivation.

5.1 The Construction of the Irish Derivation Index

Most deprivation indices are based on a factor analytical approach which reduces a large number of indicator variables to a smaller number of underlying dimensions or factors. This approach is taken a step further in the current (2005 version) index. In this index, rather than leaving the definition of the underlying dimensions of deprivation to data-driven techniques, the authors develop a *prior conceptualisation* of these dimensions. Based on the 1991 and 1996 deprivation indices for Ireland, as well as analyses from other countries, three dimensions of social disadvantage are thus identified: **Demographic Decline, Social Class Disadvantage** and **Labour Market Deprivation**.

Demographic Decline is first and foremost a measure of rural deprivation. Unlike its manifestation as unemployment blackspots in urban areas, long-term adverse labour market conditions in rural areas tend to manifest themselves either in terms of agricultural underemployment or in emigration. The latter can also be, and increasingly is, the result of a mismatch between education and skill levels, on the one hand, and available job opportunities, on the other. Emigration, is also socially selective. It is concentrated amongst core working-age cohorts and those with further education, leaving the communities concerned with a disproportionate concentration of economically-dependent individuals as well as those with lower levels of education. Sustained emigration leads to erosion of the local labour force, a decreased attractiveness for commercial and industrial investment and, ultimately, a decline in the availability of services.

Demographic Decline in the (2005) index is measured using five indicators:

- the percentage of population aged under 16 or over 65 years of age
- the percentage change in population over the previous five years
- the percentage of population with a primary school education only
- the percentage of population with a third level education (inverse effect)
- the percentage of households with children aged 15 years and under headed by a single parent (inverse effect)

Social Class Disadvantage is equally relevant to both urban and rural areas. Social class⁹ refers to the occupation of a particular individual or group of individual. Social class can have a considerable impact in many areas of life: educational achievements, health, housing, crime, economic status and many more. Furthermore, social class is relatively stable over time and constitutes a key factor in the inter-generational transmission of economic, cultural and social assets. Areas with a greater numbers of people in the lower social classes tend by their nature to have higher unemployment rates, are more vulnerable to the effects of economic restructuring and recession and are more likely to experience low pay, poor working conditions as well as poor housing and social environments.

Social Class Disadvantage in the (2005) index is measured using five indicators:

- the percentage of population with a primary school education only
- the percentage of population with a third level education (inverse effect)

⁹ The entire population is also classified into one of the following social class groups (introduced in 1996) which are defined on the basis of occupation: Professional workers, Managerial and technical, Non-manual, Skilled manual, Semi-skilled, Unskilled, All others gainfully occupied and Unknown, (CSO)

- the percentage of households headed by professionals or managerial and technical employees, including farmers with 100 acres or more (inverse effect)
- the mean number of persons per room
- the percentage of households headed by semi-skilled or unskilled manual workers, including farmers with less than 30 acres

Labour Market Deprivation is predominantly, but not exclusively, an urban indicator. Unemployment and long-term unemployment remain the principal causes of disadvantage at national level and are responsible for the most concentrated forms of multiple disadvantage found in urban areas. In addition to the economic hardship that results from a lack of paid employment, young people living in areas with particularly high unemployment rates frequently lack positive role models. A further expression of social and economic hardship in urban unemployment black spots is the large proportion of young one parent families.

Labour Market Deprivation in the (2005) index is measured using four indicators:

- the percentage of households headed by semi-skilled or unskilled manual workers, including farmers with less than 30 acres
- the percentage of households with children aged 15 years and under headed by a single parent
- the male unemployment rate
- the female unemployment rate

Each of the three dimensions of social disadvantage (**Demographic Decline, Social Class Disadvantage** and **Labour Market Deprivation**) were measured in an identical way over three different Census (1991, 1996 and 2002) and then combined to form a measure of **Overall Affluence and Disadvantage**. This approach allows the same set of dimensions and indicators to be applied to successive waves of Census data, establishing a common structure and measurement scale.

The approach developed by Haase and Pratschke in their Index is unique in that they conceptualise demographic decline (unlike any other deprivation indices across the EU), thus including a specific measure of rural deprivation in the index. Notwithstanding the authors acknowledge that there is scope to improve on the measurement of specifically rural forms of deprivation but are clear this would require the availability of more national data.

5.2 Validation against Laeken Indicators

In this section we will test the ability of the Haase & Pratschke Index, the Walsh classification and a simple measure of population density to predict deprivation in general, and in rural areas particularly. To this end, we first compare the Haase & Pratschke against regional and county level estimates of the 'at-risk-of-poverty' rates. Having established a strong correlation between the Haase & Pratschke index with the headline Laeken indicator, we than compare the Haase & Pratschke index against Walsh's (2000) classification of rural areas, as well as a simple measure of population density to see whether various classifications of rural are indicative of deprivation.

5.2.1 The Haase & Pratschke Index Scores and the At-Risk-Of-Poverty Rates

As outlined in the previous chapters, the most frequently utilised of the Laeken indicators is the 'at-risk-of-poverty' rate, which is calculated annually on the basis of the EU-SILC survey. As the EU-SILC is a sample survey, it is only routinely available at NUTS 3 level (the eight Regional Authorities) and, as a once-off study in 2002, at NUTS 4 level (34 Local Authorities). Both data are reported in Watson et al. (2005) and provide the only published data for Ireland at these levels to date. The NUTS 3 level analysis is based on the 2000 Living in Ireland Survey, the precursor of the EU-SILC, as the indicators from the 2003 and 2004 EU-SILC surveys have not yet been released below the national headline indicators (CSO, December 2005). The NUTS 4 level analysis is based on the National Survey of Housing Quality

(NSHQ), 2001/2002. The survey was carried out by the ESRI on behalf of the Department of the Environment, Heritage and Local Government. Because of its exceptional large sample size of over 40,000 households, it provided a unique opportunity to carry out a more detailed analysis of the spatial distribution of poverty and deprivation, which the EU-SILC survey with a sample size of less than 4,000 does not support.

Region	Haase & Pratschke	50% income risk	60% income risk	60% consistent poverty	50% gross odds ratio	50% net odds ratio
Dublin	5.8	17.1	21.3	3.3	1.00	1.00
Mid East	6.6	22.2	25.9	5.8	1.46	1.23
South East	-1.3	26.9	35.4	7.7	1.54	1.59
South West	2.6	32.4	40.0	7.5	1.47	1.56
Mid West	2.0	25.9	35.2	10.4	1.38	1.43
West	.1	31.6	43.5	5.0	1.78	1.64
Border	-4.7	35.5	46.4	10.1	1.75	1.66
Midlands	-1.0	29.7	34.5	4.2	1.46	1.31

Table 5.1: Deprivation Scores and Poverty Risk by Regional Authority

Source: Living in Ireland Survey, 2000; Haase & Pratschke, 2005

Figure 5.1: Deprivation Scores and 50% Poverty Risk by Regional Authority



There is a broad concurrence between the aggregate Haase & Pratschke index scores and the 50 per cent at-risk-of-poverty rate as measured in the Living in Ireland Survey ($R^2 = .64$). However, three out of the eight regional authorities differ quite markedly in their respective assessment. A more meaningful comparison, however, can be made from an analysis at local authority level.

Local Authority Area	Haase& Pratschke	50% income risk	60% income risk	consistent poverty (60%)
Dublin City	.2	1.0	1.0	1.0
South County Dublin	5.2	.5	.6	.6
Dublin Fingal	10.8	.4	.5	.5
Dun Laoghaire/Rathdown	16.0	.4	.5	.4
Kildare	8.1	.7	.7	.7
Meath	6.5	.7	.8	.8
Wicklow	4.6	.9	1.0	1.0
Carlow	-1.5	1.3	1.2	1.3
Kilkenny	2.6	.9	.9	.8
Wexford	-3.5	1.2	1.2	1.0
Tipperary SR	-2.1	1.3	1.2	1.2
Waterford City	-3.8	1.2	1.1	1.3
County Waterford	.8	1.1	1.1	1.0
Cork City	-3.5	1.4	1.3	1.3
County Cork	6.1	1.0	.9	.9
Kerry	5	1.3	1.3	1.3
Clare	3.8	1.0	1.1	1.2
Limerick City	-7.7	1.5	1.3	1.5
County Limerick	5.0	1.1	1.1	1.0
Tipperary NR	1.3	.9	.9	1.1
Galway City	7.0	.7	.7	.7
County Galway	.4	1.2	1.2	1.0
Мауо	-4.4	1.5	1.4	1.5
Roscommon	.7	1.2	1.1	1.1
Louth	-4.1	1.1	1.1	1.2
Leitrim	-1.9	1.3	1.4	1.5
Sligo	1.0	1.2	1.1	1.3
Cavan	-2.1	1.3	1.3	1.2
Donegal	-9.6	1.7	1.6	1.9
Monaghan	-4.0	1.1	1.0	.9
Laois	-1.7	1.0	1.0	1.1
Longford	-3.5	1.5	1.4	1.5
Offaly	-2.0	1.3	1.2	1.1
Westmeath	1.5	1.0	1.1	1.1

Table 5.2: Deprivation Scores and Poverty Risk by Local Authority

Source: National Survey of Housing Quality, 2001/2002; Haase & Pratschke, 2005

Table 5.3: Correlation of Socio-Economic Characteristics and Index Scores with at-Risk-of-Poverty Rates

Variable	50% income risk	60% income risk	60 % consistent poverty
Haase & Pratschke 2005	-0.89	-0.86	-0.85
Age dependency ratio	0.57	0.63	0.54
Proportion with primary education only	0.86	0.87	0.80
Proportion with third level education	-0.71	-0.72	-0.66
Proportion of higher and lower professionals	-0.83	-0.80	-0.78
Proportion of semi and unskilled manual workers	0.88	0.84	0.83
Unemployment rate	0.65	0.61	0.69
Unemployment rate - male	0.63	0.59	0.68
Unemployment rate - female	0.59	0.55	0.60

Table 5.3 shows the correlations between individual Census variables and the Haase & Pratschke Index, and the NSHQ based at-risk-of-poverty rates at local authority level. As can be seen, the combined index performs marginally better (correlation of -.89 at the 50 % income level) than any of the individual Census-based indicators (between .59 and .86).

Moreover, and of particular interest is which of the indicators performs better and which are less aligned with the at-risk-of-poverty rate. The indicators most strongly correlated are the two education and social class indicators, whilst the age dependency ratio and the unemployment rates fare less well. This is in concurrence with the structural dimensions conceptualised in the Haase & Pratschke model: whereas the social class dimension is shown to equally apply across the urban and rural spectrum, the age dependency ratio is a predominantly rural phenomenon, whilst the unemployment rate is stronger correlated to urban deprivation.

In conclusion, there is a close correlation between the Haase & Pratschke 2005 index scores and the 'at-risk-of-poverty' rate. Figure 5.3 shows a graphical presentation of the relationship between the 50 per cent at-risk-of-poverty rate and the Haase & Pratschke index score.



Figure 5.2: Deprivation Scores and 50% Poverty Risk by Local Authority

NSHQ Income Poverty Risk 50%

5.2.2 An Exploration of the extent of correlation between the Haase & Pratschke 2005 Index and the Walsh (2000) Rural Typology

Having established that there is a close correlation between the Haase & Pratschke 2005 index scores and the 'at-risk-of-poverty' rate, we now apply the Haase & Pratschke index scores at Electoral Division (ED) level to test how well Walsh' rural typology identifies rural deprivation. Table 5.4 illustrates the distribution of the scores within each of the Walsh categories.

Table 5.4. De	Table 3.4. Deprivation Scores by Waish Classification							
Walsh 2000	EDs	Min	Мах	Mean	Median	Std		
Urban	713	-51.1	28.7	1.2	1.4	14.1		
Peri-urban	442	-13.1	25.5	5.7	6.3	7.5		
Very Strong	628	-23.8	17.7	5	8	7.4		
Strong Adjusting	609	-32.1	19.6	1.0	1.2	7.0		
Structurally Weak	643	-30.9	23.3	-2.4	-1.9	7.5		
Marginal	200	-44.1	9.4	-12.1	-11.0	9.7		
Highly Diversified	187	-27.0	25.5	1.3	2.3	8.6		

Table 5.4: Deprivation Scores by Walsh Classification

Source: Walsh et al. (2000) , Haase & Pratschke (2005)

Figure 5.3: Deprivation Scores by Walsh Classification



Walsh 2000 Classification

The box plot (Figure 5.3) illustrates the same data as shown in Table 5.4 in graphical form. The horizontal line in the centre of each box plot indicates the median, i.e. the value above and below which 50 per cent of cases are observed. The shaded area marks the central 50 per cent of observations, whilst the 'whiskers' identify the range of the main body of data. Untypical observations, which are outside three times the length of the 25th percentile are considered to be outliers and are marked by the symbol 'o'.

Interpreting the box plots, we can make the following observations as to Walsh' rural classification and its ability to identify social and economic deprivation:

Urban areas are highly segregated with regard to affluent and deprived areas, but contain roughly equal numbers of each. This is expressed in a mean and median close to zero (i.e. the national average), but a large spread around the mean. This concurs with the large standard deviation (14.1) and the large size of the box (i.e. the central 50% of observations), as well as the long whiskers.

Peri-urban areas are much more clustered around the mean (shown in the shorter box and the shorter whiskers) (mean of 5.5 & median (6.3). There are no outliers. The classification concurs with Haase & Pratschke's finding that the urban peripheries are Ireland's most affluent areas, largely as a result of re-zoning and the in-movement of large numbers of young, double income households with few dependents.

The very strong, strong adjusting and structurally weak do not appear to be very well differentiated with regard to underlying affluence and deprivation, at least not if measured by the Haase & Pratschke index. The mean and median of the very strong areas are actually marginally below zero (-0.5 and -0.8), and those of the strong adjusting areas are marginally above zero (1.0 and 1.2). The structurally weak areas are marked by below average index scores, but not far below zero (mean of -2.4 and median of -1.9). All three types have comparatively long whiskers and a significant number of outliers. If the Walsh' classification of areas was closely associated with varying degrees of deprivation, one would have expected that areas labelled strong or weak would be more significantly different from zero and be clustered more closely around their mean. One possible explanation for this is that Walsh' classification gives a substantial amount of weight to the role of farming in rural areas, which, given the relatively small number of people involved in farming as a proportion of the total population, may skew the overall classification.

Areas classified as **marginal** are distinctly different from the national average and thus concur closely with the low scores of the Haase & Pratschke index (a mean of -12.1 and median of -11.0).

Areas classified as **highly diversified** show similar properties to those classified as strong adjusting. They have a mean of 1.3 and a median of 2.3.

In summary Walsh's categories of urban, peri-urban, and marginal areas show a reasonably good spread of affluence/deprivation scores. However, the areas classified as 'very strong', 'strong adjusting', 'structurally weak' and 'highly diversified' seem to differ little in their degrees of relative deprivation, as shown by the Haase & Pratschke index. Interestingly, this occurs despite the fact that both Walsh and Haase & Pratschke use variables from the 2002 Census of Population. One possible explanation for the less than perfect fit is the difference in variable selection between the two approaches. Walsh' analysis is based on the non-urban EDs only (i.e. all urban EDs are excluded). By restricting the analysis to rural areas alone, the classification is also able to utilise farming-related indicators. This could not be done in the Haase & Pratschke index which, because it includes all EDs (rural and urban), cannot include farming related variables given that they would be zero for about one third of the areas. In summary, while the Walsh approach provides valuable insights into farming households' ability to adjust to a changing economic environment, it relates only to a relatively small sub-sample of the rural population and as such may not translate significantly into estimates of affluence and deprivation for the rural population as a whole.

5.2.3 An Exploration of the extent of correlation between the Haase & Pratschke 2005 Index and a simple measure of population density

Haase & Pratschke have identified demographic decline as a distinct form of rural deprivation. As demographic decline is first and foremost associated with the continued population loss of an area, the final analysis presented here tests whether population density on its own is a useful indicator of rural deprivation. However, before advancing to such analysis, we will first briefly consider the underlying population changes over the past twenty years.

Year	1981-1986	1986-1991	1991-1996	1996-2002
Greater Dublin Area	0.2%	-0.1%	0.5%	0.9%
Other Cities	0.6%	0.2%	1.0%	1.1%
Towns > 10,000	1.4%	0.6%	1.6%	2.7%
Towns 5,000-10,000	0.9%	0.1%	1.2%	2.5%
Towns 3,000-5,000	0.8%	-0.1%	1.3%	3.2%
Towns 1,500-3,000	0.6%	-0.2%	0.7%	2.0%
Aggregate Town Area	0.6%	0.1%	0.9%	1.6%
Towns 1,000-1,500	0.2%	-0.3%	0.4%	1.7%
Towns 500-1,000	0.9%	-0.2%	0.2%	1.3%
Towns 50-500	1.0%	-0.3%	0.2%	2.8%
Open Countryside	0.5%	-0.3%	0.1%	0.6%
Aggregate Rural	0.6%	-0.3%	0.1%	0.9%
State	0.6%	-0.1%	0.6%	1.3%

Table 5.5: Average Annual Population Change

Table 5.6: Population Shares for Settlement Hierarchy

Year	1981	1986	1991	1996	2002
Greater Dublin Area	27%	26%	26%	26%	26%
Other Cities	10%	10%	10%	10%	10%
Towns > 10,000	8%	9%	10%	12%	13%
Towns 5,000-10,000	7%	6%	6%	6%	6%
Towns 3,000-5,000	3%	3%	3%	2%	3%
Towns 1,500-3,000	3%	3%	3%	3%	3%
Aggregate Town Area	56%	57%	57%	59%	60%
Towns 1,000-1,500	2%	2%	2%	2%	2%
Towns 500-1,000	2%	3%	3%	3%	3%
Towns 50-500	3%	3%	3%	2%	3%
Open Countryside	36%	36%	35%	35%	33%
Aggregate Rural	44%	43%	43%	41%	40%
State	100%	100%	100%	100%	100%

Source: CSO Population Classified by Area, Volume 1, various years

Table 5.5 shows the average annual population changes for each of the past four inter-censal periods at the level of aggregate town and rural areas. Table 5.6 shows the resulting population distribution across the different categories of the settlement hierarchy. The Irish Central Statistics Office defines an Aggregate Town Area as those persons living in population clusters of 1,500 or more inhabitants. The population residing in all areas outside clusters of 1,500 or more inhabitants is classified as belonging to the Aggregate Rural Area.

The figures clearly demonstrate that, despite the turnaround in external migration patterns and the overall experience of population growth in Ireland, urban and rural areas have undergone a distinctly different growth experience over the past decade. This can best be described as the thinning out of populations in both rural and inner city areas and the development of new settlements in outer urban belts within commuting distance of the larger cities and towns. This development holds not only for the five major cities – Dublin, Galway, Limerick, Cork and Waterford – but also for effectively every town throughout the country. As planning regulations and the rezoning of land favour the expansion of urban commuter belts, each of the growing towns have come to be surrounded by a rural hinterland which continues to experience population decline.

Unfortunately, it is not possible to use the exact CSO classification of urban and rural areas for comparison with the Haase & Pratschke deprivation index, as the data which underlies Tables 5.5 and 5.6 is not based on ED level aggregations of areas. In the absence of such classification, we simply apply a measure of population density (the number of residents per square kilometre) and rank the resulting densities into ten deciles.

Decile	EDs	Population per Km ²			Haase & Pratschke Index Scores			
		Min	Max	Mean	Min	Max	Mean	Std.
most rural decile	342	2	26	17	-38.0	25.5	-4.5	10.8
2 ^{nnd} decile	342	26	35	31	-37.2	25.5	6	8.3
3 rd decile	342	35	44	40	-26.8	23.3	2	7.6
4 th decile	342	44	52	48	-36.4	19.6	.5	7.7
5 th decile	342	52	63	57	-29.2	17.8	2	7.9
6 th decile	342	63	79	71	-32.0	19.3	.7	7.8
7 th decile	342	79	115	94	-44.1	22.0	.9	8.8
8 th decile	342	115	279	164	-34.2	18.3	1.2	9.1
9 th decile	342	283	7,303	2,948	-32.2	26.8	2.9	11.9
most urban decile	342	7,305	43,792	13,918	-51.1	28.7	7	16.1

Table 5.7: Deprivation Scores by Population Density

Source: Haase & Pratschke (2005)

Table 5.7 and Figure 5.4 show the distribution of the Haase & Pratschke index scores for each decile of EDs according to their population density. The first decile signifies the most rural decile with an average population density of 17 persons per km² and the tenth deciles is the most urban decile with an average population density of just under 14,000 persons per km². Interpreting the box plots, we can make the following observations:



Figure 5.4: Deprivation Scores by Population Density

There is a very marginal increase in deprivation as population density decreases. The average index score for the most rural decile of EDs is -4.5, compared to an average of 2.9 for the second most densely populated decile. However, for each decile, the spread around the mean (as indicated by the standard deviation) is a multiple of their respective means, indicating that the observation is of no statistical significance. In other words, the deprivation scores for each decile of EDs are effectively randomly distributed. In conclusion, population density has, taken on its own, no relationship with the Haase & Pratschke index scores and, by implication, with the 'at-risk-of-poverty' rate as utilised in the current monitoring of the National Strategy for Social Protection and Social Inclusion, 2006 – 2008.

Evaluation of the Haase & Pratschke Index, Walsh' Rural Classification and a Population Density Measure against the 'At-risk-of-poverty' Rate

- 1. There is a strong correlation (0.89) between the Haase & Pratschke Index and the 'atrisk-of-poverty rates'. The index provides a better fit in relation to the Laeken headline indicator than any individual socio-economic census variable.
- 2. Seven of the Index' ten individual socio-economic indicators were tested and performed well against the at-risk-of-poverty rate. This confirms the robustness of the structural dimensions of the Index.
- 3. The Walsh 2000 typology of rural areas does not produce a strong differentiation with regard to deprivation as measured by the Haase & Pratschke Index and, by implication the 'at-risk-of-poverty' rate. The reason for this is that the typology strongly reflects measures of population density and land use patterns which, in themselves, are not indicative of the extent of disadvantage experienced by rural people as a whole.
- 4. Population density produces no significant differentiation with regard to deprivation as measured by the Haase & Pratschke Index and, by implication the 'at-risk-of-poverty' rate. This is in line with the ESRI's findings which have repeatedly shown that deprivation is equally distributed across the urban-rural spectrum.

6 Findings from the Consultation with Rural Practitioners

This chapter provides a brief synopsis of the key findings from two workshops held in Kilmallock and Kilbeggan during Spring 2006. In total, over 40 practitioners from a wide array of rural agencies participated in the two workshops. These included local authority officials and elected members, Area Based Partnerships and Community Partnerships, LEADER groups, government departments, state and semi-state agencies, voluntary organisations and local councillors. The discussions were focused on the question of how rural deprivation is measured. Most participants had a good working knowledge of current methods of measuring poverty, social exclusion and of the Haase & Pratschke deprivation index. The workshops therefore focused on how rural deprivation might be better conceptualised, taking into account existing limitations on data availability.

The findings are summarised under two headings: i) the identification of the distinctive features of rural disadvantage and, ii) the implications for the improvement in measuring rural deprivation.

6.1 Distinctive Features of Rural Disadvantage

The discussion of distinctive features of rural deprivation comprised both of the identification of the features, as well as the identification of issues that need to be addressed.

6.1.1 General Features

- Rural areas are often geographical peripheral and therefore the rural population generally need to travel to access a range of different services.
- Rural disadvantage is generally less visible and more dispersed than urban disadvantage. The stigma of being disadvantaged in rural areas (only one among many) makes it more unlikely for people to self identify in a rural area.
- There is an element of denial of the existence of rural disadvantage with the prevalence of an image of the rural idyll/higher qualify of life in rural areas.
- There is a perceived absence of choices/lack of flexibility in rural areas where people find themselves tied to their land and their home (in what might be best referred to as generational responsibility). It is also the case that many could not afford a house in a more urban area or do not have the necessary skills to move.
- The cost of living is more expensive in rural areas (e.g. local shops are expensive, and transport is needed to access other shops and services).
- Re-structuring of agriculture is leading to the restructuring of the economic and employment base in rural areas. This base has become much narrower in recent years.
- Rural areas are very dependent on public funding.

6.1.2 Specific Issues of Rural Disadvantage in Ireland

Population Profile

A high proportion of the rural population are dependent on welfare transfers. Confidence levels in rural areas can be quite low depending on the population mix. There are often high levels of out-migration of young people, especially those attending further/third level education. In some areas the population is very seasonal (with high numbers of holiday homes). The size of families is decreasing as the number of households increases.

Planning Issues

There is an absence of forward planning for rural areas. Preference needs to be given to provide new housing on the edge of towns and villages rather than one-off houses in the open countryside. The National Spatial Strategy seems very far away from rural communities.

The Critical Mass

There is a lack of critical mass in some rural areas that is making it economically unsustainable for these areas to support the range of services previously supported within the locality. Examples include the closing of local post offices and banks. These closures force those who need post offices, for example older people who want to collect their pensions, having to travel further to collect them. The closure of essential services in turn has a knockon affect on other businesses. The issue of critical mass and the creation of critical mass is closely linked to planning and development control.

Volunteers and Social Capital

Incomers to rural areas are not being tied into the existing communities, i.e. not encouraged to use local services or asked to volunteer to provide or support local services. The need for social enterprise is an issue particularly in relation to the provision of elder and child care services and supports at a local level. Many Community Employment and Social Economy schemes are delivered using an urban model and the rural social scheme has a significant number of restrictions.

Employment Opportunities

Rural poverty and deprivation are often the result of low paid, self-employed, part-time and seasonal work rather than long-term unemployment. The economic base of many rural areas is narrow with a reliance on primary industries as an employment source and particularly agriculture. The restructuring of agriculture and the predictions that there will be a substantial and continued fall in the number of people employed in agriculture narrows the employment opportunities further. The Single Farm Payment will only sustain people for 6-7 years.

Employment in the construction sector has been a major source of jobs for rural workers, but it is unlikely that levels of employment can be maintained at current exceptional levels. Tourism is an area that is expected to expand further but its regional distribution remains selective. It is also the case that many of the current production-oriented Foreign Direct Investment (FDI) manufacturing industries could, as has recently been the case, move to lower-cost economies. Job growth in agency-assisted companies has favoured the larger urban locations and, regionally, the East. There is a general lack of inward investment. Overall, the options for employment are more limited in rural areas. There are, for example, only limited opportunities for part-time work. This, in turn, often means people are forced to choose between being over-qualified or making a decision to travel further for a better job.

Mental Health Issues

Isolation can have serious psychological effects on a range of population groups namely, youth, older people, farm women, lone parents, disabled people, migrant workers and refugees and asylum seekers. In a rural situation, these individuals are frequently invisible on account of their (spatial) isolation and are often not in a position to participate in community life and activities. Suicide rates particularly are up to 25 per cent higher in rural areas than they are in Dublin.

Provision of Services

There is an absence of local delivery of many public services in rural areas, with only limited accessibility to services that do exist. For early school leavers in rural areas, for example, the nearest Youthreach Centre often involves significant travel. The issue of the provision of adequate service in areas in transition (peri-urban) has also been identified as an important concern. Many areas in transition from rural to urban suffer from a lack of services and upkeep of exiting services and infrastructure.

Access to Critical/Essential Services

It is clear that not all services will be as accessible in rural areas as they would be in a larger centre of population. What is important, however, is that those who live in rural areas can access all *critical* services in a reasonable way. Critical services may be defined as those which are essential in allowing a person to fully participate in society's life and that are taken for granted by the majority of the population. This includes basic health, education, social and cultural services to be available within the locality, and more specialised services to be reachable within reasonable distance. Obviously, one will need to define what constitutes reasonable distance or accessibility of critical services. A key aspect, in this regard, is the question of transport and transport infrastructure.

Access to Public Transport

Access to transport is linked to the distances that those who live in rural areas often need to travel to access both services and employment/training opportunities. In many rural areas residents cannot readily access the public transport system. Where public transport services do exist, the range of travel options are limited. In many instances, the major transport routes lead to Dublin, with few orbital routes available and interconnections between regional towns and villages being underdeveloped.

Where there is no public transport, multiple cars may be a necessity and not a luxury, as it might be seen from an urban perspective. This puts those who cannot afford a car, or one car households where the car is gone all day, at an additional disadvantage. There remains a substantial number of rural women who even if they had access to a car cannot drive. The Rural Transport Initiative constitutes a very positive move and has had an enormous impact on disadvantage in the areas in which it operates, but the initiative demands considerable further development and a significant expansion in scale.

Access to and Gaps in Health Services

People in rural areas often have to travel substantial distances to access their local GP and their exist very limited choice between GPs. The distances required to access acute hospital services are even more substantial, and the time required for emergency services to reach a person in a medical crisis is of major concern. The ability of the rural population to access health screenings is curtailed by the distance to be travelled. There are further gaps in the provision of specialised health services and supports for the elderly living in rural areas, including chiropody services, dementia services, etc.

Access to Education

Public transport options are very limited and making full-time attendance at third level education difficult for those who do not have the necessary resources to either live close to the campus or to run a car. Where outreach training is available, it tends to be delivered using an urban model which requires a quota of 15-20 (or sometimes 12-16) participants before a course will be offered. This limits the range of training opportunities available. Where training is offered, travel to the training centres can involve round trips of 80 miles or more.

Access to Information and Information Technology

Particular groups within the rural population, particularly the elderly or farm families, find it difficult to access the information they require to ensure they are fully aware of their entitlements and opportunities. There is a lack of communications infrastructure, particularly broadband. Group broadband only applies to villages and a lot of areas are not included, and indeed will not be included for some time, making it thus difficult for those who need to use it for work, education or social purposes. It is also the case that, because of the age profile and the lack of training opportunities and access to computers (e.g. through the local library), that there is a high proportion of late adapters within the rural population. In many ways these individuals could be considered the new illiterate.

Access to Childcare

There is a lack of flexible childcare opportunities in many rural areas. Where childcare facilities have been developed and supported through the national childcare programme, there are now questions around the future viability of these services. Questions include

whether there will be sufficient demand for the services and whether the services will require ongoing subsidisation.

Access to Facilities for Young People

There is a general lack of facilities for young people, e.g. for early school leavers in rural areas, the nearest Youthreach Centre often involves significant travel.

Access to Decision-Making

One of the issues raised at the workshops was the reduced representation from rural areas in light of the re-structuring of electoral boundaries; the rural voice is becoming less politically important. It was also noted that the programme established to target rural disadvantage, CLÁR, provides no real opportunities for community engagement. Its focus is on the provision of infrastructure, not on communities at risk (i.e. focus on already depopulated areas). This is very different to the RAPID approach which is more proactive and which involves more engagement with the wider community. There is a general lack of focus on social capital and areas in transition, e.g. dormitory towns.

Access to Credit and Banking

Access to credit, from both a financial and a physical perspective, is more limited in rural areas. It is also the case that many of those with money are investing it outside the rural community, or even abroad. People tend to be asset-rich and are 'site-harvesting' to survive. Such approach has a limited lifespan and is likely to result in the gradual erosion of assets in rural areas.

Access to Affordable Housing

There is a lack of social and affordable housing in rural areas. Many rural residents are on fixed incomes and rural incomes tend to be lower than their urban counterparts. This means, rural inhabitants cannot compete with outsiders in relation to the purchase of houses and/or sites. Rural families are being forced to move elsewhere since they cannot access the land or the capital to locate nearby and thus maintain the family support structures.

Access to Policing

The lack of policing services (particularly at night) has created a heightened sense of fear, in particular among many older rural residents.

Access to Environmental Services

Waste collection services are costly and are not always available in rural areas. Water quality in some rural areas is very poor.

6.2 Improving the Measurement of Rural Deprivation

This section aims at translating the key issues which where identified by rural practitioners during the workshops and consultations into actual measurement concepts.

6.2.1 Indicators Particularly Relevant to Rural Deprivation

Lack of Opportunities

The comparative lack of opportunities in rural areas is seldom adequately captured, conceptualised and measured, including: (i) educational opportunities, (ii) labour market opportunities, and (iii) sustainability of local labour markets.

Critical Mass: Human Capital

The question arises as to whether it is possible to develop a measurement to capture the inherent indigenous strength of an area in terms of its human capital.

Critical Mass: Services

Is it possible to identify the minimum numbers that are necessary to sustain basic local services?

Quality of Life

Broader issues relating to Quality of Life are not measured. These include health and wellbeing, life expectancy, environment, and community strength/cohesion.

Health and Well-Being

It would be useful to have indicators which measure the 'health' of a community. This could include access to GP, distance to specialised and acute hospital services, pre-mature mortality rates, rates of long-term limiting illnesses, mental health, etc. Specific measures considered include:

- number of pre-mature deaths per 1,000 population,
- number of people with long-term limiting illnesses per 1,000 population,
- incidence of physical and intellectual disability per 1,000 population,
- number of people with depression per 1,000 population,
- number of people dependent on anti-depressants per 1,000 population,
- number of suicides per 1,000 population,
- levels of alcoholism,
- levels of domestic violence,
- non-uptake of social, community and health services,
- number of GPs per 1,000 population
- average distance (or time travelled) to GP.

Community Cohesion

Broader issues relating to community cohesion are not measured. There is a need to look at the nature of integration of foreign nationals, including migrant workers, asylum seekers and refugees in rural areas.

Volunteerism

The levels of volunteerism would be an interesting measure to describe rural areas. This could both be a strength or a weakness.

Employment Patterns

Weaknesses in the economic base relating to:

- proportion of employment in vulnerable sectors,
- average length of employment,
- nature of employment: part-time/full-time,
- per cent of workforce that are migrant workers,
- per cent of population dependant on income transfers.

Access to Service (other than health and social services)

- average distance/drive time to key educational and social services,
- average distance/drive time to essential consumer services,

Role and Affect of Planning

Measures to capture the lack of infrastructure, including:

- number of houses locally available for purchase or to rent
- services (electricity, fresh water, sewage)
- access to public transport
- access to Information and Communication Technologies (computers in household, broadband)

Geographical Peripherality (particularly in context of Islands)

• Extreme physical isolation and attendant problems of access (e.g. islands form part of larger mainland EDs)

6.2.2 The Development of Comprehensive National Data Sources

Unfortunately, the only national data source currently available in Ireland to provide local (Electoral District based) statistics is the Census of Population. This situation is unlikely to change in the short term. There are, however, important developments with regard to the longer term, notably the 2011 Census of Population; i.e. in roughly 5-6 years time. A crossdepartmental working group under the auspices of the CSO and Ordnance Survey is currently working on a new Small Area data infrastructure. The aim of this group, the Irish Spatial Data Infrastructure (ISDI) Working Group is to develop a new geography of Small Areas (SAs), below the level of current EDs, with an average number of approximately 130 households within each small area. This is a very positive development because it will provide a much more consistent geographical coverage effectively down to neighbourhood level (thus for example avoiding the nesting of unemployment black-spots within larger otherwise more affluent areas). The Working Group includes representatives of all major Government departments, with the aim that these Departments will develop a method by which to tack/link a new Small Area Identifier to all administrative records, thus allowing the immediate statistical reporting of all social, health and education headline indicators at that level. This Working Group is supported through the Information Society Commission under the Department of the Taoiseach.

To date, the Working Group has, with the help of NUI Maynooth, developed an algorithm by which to designate the new Small Areas. This has been tested within the sub-divisions of two EDs (Maynooth and Leixlip) and a proof of concept study has been undertaken across nine EDs ranging from extreme urban to extreme rural. The key is the development of a system by which to achieve maximum homogeneity within each spatial unit and maximum differentiation between units. The new Small Areas will be nested within existing EDs to allow data continuity over time. Finally, there is also the possibility that the new Small Area Identifiers will be directly linked to a new postcode system.

6.2.3 Augmenting Census Indices through Locally-based Data

The current drive towards a new Irish data infrastructure provides a unique opportunity for improving our understanding and measurement of rural deprivation, and the exploration of local data sources to augment current census-based deprivation indicators can be of considerable importance in this process. There are at least three ways in which the improvement of existing measures of rural deprivation in Ireland may be beneficial:

- 1. Within Ireland, it will support the Small Area Working Group and the participating Departments in their work in identifying what indicators they need to supply at high levels of spatial disaggregation. It also demonstrates to the Departments that there is a demand for the data and that it will be put to good use.
- 2. At EU level, any improvements in the conceptualisation and measurement of rural deprivation in Ireland need to be communicated to the relevant working groups, in such a way as to influence the development of an EU-wide system of poverty and social exclusion measurement which is sensitive to rural deprivation.
- 3. There is always a need to augment national data sources with more specific data at local level. To be meaningful, however, local data collection must adhere to three key requirement:
 - it should not attempt to achieve at local level what is more suitably done at national level (e.g. guarantee comparability across areas and not waste local effort),
 - it has to be of a quality that makes an impact on the regional, national and indeed EU-wide systems,
 - it should provide additionality at local level and be policy focused.

Table 6.1 outlines what emerged as the most relevant *local* indicators which might be pursued in the development of an improved measurement of rural deprivation.

Table 6.1: Possible Additional Local Rural Disadvantage Indicators

Issue	Suggested Mechanism for Measurement
Isolation issues for carers, elderly	Info from GPs, health workersUptake and activity levels of Community Alert Schemes
Depression & suicide (young men)	Info from GPs, health workers, and Public Health Nurses
Access to services	 Number of visits to local service centres; Usage rates of Rural Transport Initiative (RTI). Use of Community Information Centres (CICs) through 'social policy mechanisms'. Agencies such as HSE need to name and present the boundaries of what they can /cannot do so that other local development bodies are clear about gaps in services could also be used in developing indicators associated with quality of life.
Smallholders – income support	• Look at Rural Social Scheme (RSS) nationally in terms of take-up, etc.
Substance abuse	 Look at info /stats from Regional Drugs Task Forces but be aware of possible urban bias in collecting data.
Access to family supports	• Look at Family Resource Centres (app. 180 FCRs around the country) to glean relevant info. There is a new Evaluation System in use by the FRCs.
New issues emerging	Use of CIC 'social policy mechanism' to identify new issues. Good measurement nationally through Comhairle.
Work of the Local Development Social Inclusion Programme (LDSIP)	 Use of info /stats /research /studies by LDSIP groups (70 around the country) regarding the 14 target groups of the LDSIP. Look at ways to support Area and Community Partnerships in accessing other target groups incl. gay & lesbians and immigrants in rural areas.
Stress Test Rural Areas in relation to their dependency on a particular employer/sector	 Examples given were Abbeyfeale where the local economy is very dependent on one employer (Munster Joinery) and Donegal (Fruit of the Loom).
Other	 Local Government Performance Indicators Local needs analysis National careers data

Findings from the Rural Consultations

- 1. The rural practitioners consulted did not believe that the current measures of disadvantage adequately captured or measured the extent and nature of rural disadvantage. It was however acknowledged that 2005 Haase & Pratschke Index did, unlike other indices, include a distinct rural dimension.
- 2. The rural practitioners identified a number of distinct features of disadvantage in rural Ireland which are currently not adequately covered. The majority of these issues related to the inability of individuals and communities to access services and opportunities. The official (Laeken-based) measures of poverty and consistent poverty focus primarily on income levels while the Haase & Pratschke Index comprises a wider spectrum of attributes of populations (e.g. level of education, social class, etc) and their possessions (e.g. occupation as a proxy to earning capacity, housing conditions, etc); there is currently no precedent in relation to how the lack of access to services or opportunities may be conceptualised or indeed measured.
- 3. The practitioners identified 'lack of opportunities' as the single most important omission from existing measures of disadvantage. Work needs to be undertaken to identify mechanisms that could be used to systematically measure the concept of 'opportunities'.

7 Measuring Opportunity

This chapter addresses the question of how 'opportunities' may be conceptualised and how the measurement of opportunities might be undertaken in the Irish context. It starts with some methodological considerations as to how opportunity may best be understood. This is followed by two research proposals which outline how this measurement might best be implemented in relation to the National Report for Ireland on Strategies for Social Protection and Social Inclusion, 2006 - 2008.

7.1 Methodological Considerations

People have different opportunities or life chances because of their personal attributes (health, intellect, etc.), their possessions (these are often measured using proxies like level of education and occupation) and/or because of where they live. For the purpose of constructing deprivation indices, the first two aspects are frequently identified with the help of census information (Haase & Pratschke, 2005) or administrative data sources (Noble *et al.*, 2000). Here we are exclusively concerned with the third aspect; i.e. the possibility that people lack opportunities because of where they live. Spatial deprivation, as we might call this, may further relate to either the location or characteristics of a particular area, or be the result of an interaction between spatial and personal characteristics. An example of the first case is where a rural location is located far distant from the closest A&E hospital and where it would take an ambulance a long time to reach a critically ill person. The second case is more prevalent and could relate to a large number of examples like the ability to access a GP, employment and training opportunities or essential services including a supermarket, bank, post office etc. Each of these may be reasonably accessible for those who avail of a private car, but may be inaccessible for those who depend on public transport.

Unlike a person's personal characteristics or possessions, the indicators that could be used to measure the concept of 'opportunities' or 'spatial deprivation', cannot be easily taken from the Census of Population nor indeed from any other existing data sources. The reason for this is that the concept of opportunity does not depend on the characteristics of a single place alone, but instead describes the relationship of one place *relative* to another place or indeed more than one other place. Relationships such as these are perhaps best understood in terms of the variety of 'push' and 'pull' factors that exist between two or more areas and the most appropriate way to measure this kind of relationship in a scientific manner is by means of a gravity model.

There are only a few examples to date in international literature where gravity models have been applied to the measurement of opportunities or spatial deprivation. Examples include studies to predict migration patterns in relation to the relative attractiveness of local labour markets to another and, most frequently, in relation to transport studies. Most recently, a new theme in which the use of gravity modelling has become prominent is the identification of 'food deserts' in specifically urban settings. Conceptually, all three applications of gravity models closely mirror the problems associated with the measurement of lack of opportunities: given that in each of the three cases a gravity model is used to estimate the strength of the prevailing 'push' and 'pull' factors which make one place more advantageous or attractive than another/others.

In using a gravity model, one can use either aggregate (i.e. area-based) data, or individual level data. This distinction essentially separates studies into two classes. The first concentrates more on the characteristics of areas (areas of origin and destination) and the distance between areas as determinants of the relative attractiveness of one area to another/other area. This is called the macro-level approach. The second approach focuses on the characteristics of individuals that influence individual constraints or behaviours. This is called the micro-level approach. Both types of approaches are needed to fully explore the concepts of opportunity or spatial deprivation. The next section contains an outline of some of the general features of both macro- and micro-level gravity models.

7.1.1 Macro-level Gravity Models ¹⁰

Macro-level Gravity Models use the characteristics of areas (areas of origin and/or destination) and the distance between areas to determine the relative attractiveness of different areas to each other.

Basic Gravity Model

The simplest gravity models relate the flow of people from one area to another to the relative attractiveness of each area, as proxied by their respective population sizes and the distance between the areas. The form of the relationship is based on the formula for the Newtonian law of gravitation, where the force of attraction is proportional to the masses of the bodies involved and inversely proportional to the square of the distance between them.

Different definitions/measures of the size of the masses

There are two masses in the basic gravity model; one for the transmitting area, and the other for the receiving area. One interpretation of the transmitting mass can be the size of the population in the area, or the migrating population. The mass of the receiving area can represent the population size there, the size of the area's economy (Gross Regional Product), or some other labour market variables such as the number of jobs (see the discussion on modified gravity models below).

Different definitions/measures of distance

Depending on the circumstance, measures of distance may be appropriate. Some common measures or interpretations of the distance variable include the simple linear distance between two points, the actual travel time, the transport or travel cost and /or the cost of relocation (e.g. removal costs). Other studies have included other types of measures of distance: including social distance, political distance, and psychological distance or psychic cost (e.g. the cost of leaving behind relatives and friends).

The basic gravity model - i.e. one which simply relates the flow of people from one area to another to the attractiveness/characteristics of the two areas - has been rejected on numerous grounds, including the fact that it is not based on a behavioural theory nor indeed is it a good predictor. In addition, since the model explains the flow (i.e. migration) in terms of stocks (i.e. population size), the timing of measurement of the stocks is a critical issue. Finally, the basic gravity model unrealistically assumes that the migration flow between two particular areas is only dependent upon the characteristics of the two areas concerned and thus fails to include the effect of the other areas in the system. Some of these criticisms have since been addressed by making some modifications to the basic gravity model, the result of which is the Modified Gravity Model.

Modified Gravity Model

The Modified Gravity Model is derived by expanding the basic gravity model and adding additional variables that have a behavioural content, typically characteristics of the origin and destination areas, and additional variables that are expected to influence an individual's behaviour (e.g. the decision to migrate). Commonly added attributes include income or wage rates, unemployment rates, the weather, the degree of urbanisation, house prices, heating costs, various measures of public expenditures and/or taxes and many others. The addition of these additional variables in the model assist in better understanding the relative "attractiveness" (i.e. is the area a place to leave (push factors) or a place to move to (pull factors).

¹⁰ The example for the macro-level gravity model is taken from a study on migration patterns by Maré and Choy (2002).

7.1.2 Micro-level Gravity Models ¹¹

While macro-level gravity models can be used to analyse the relative attractiveness of areas (*per se*), micro-level gravity models enable the examination of the differential effects of the area characteristics on its residents.

When we try to unpick what the lack of opportunity in rural areas may consist of, one quickly sees that the concept of differential attractiveness is closely linked to the question of transport. For example, a town nearby may provide a more diversified job market and thus be of greater significance than a bigger urban area further away that might be imagined for a person living in a remote rural area who might wish to further their career. In this instance the use of a macro-level gravity model, would enable a comparison between the two areas by their respective labour market characteristics; and indeed the overall attractiveness of the two areas. It would not, however, suffice to determine whether the differences would act as a constraint or an opportunity for each individual living in the remote rural location. For example, one person may have their own car and thus easily access the nearby town, whilst another person (without private transport) may not be able to travel to the town as appropriate public transport infrastructure is not in place. The application of a micro-level gravity model, would enable the analysis of the constraints and opportunities as they apply to the individual and thus allow the real effects of spatial opportunities or deprivation to be determined.

The international literature overwhelmingly identifies access to transport as *the* key aspect in relation to whether the potential offered by a non-local job or training opportunity, or indeed access to essential services may be realised by an individual or not. This emphasis on transport is strongly supported by the findings of the workshops with rural practitioners (conducted as part of this study), which emphasised the importance of transport as a critical dimension of rural deprivation. A number of recent UK-based studies (Church *et al.*, 2001; Graffon *et al.*, 2001; Department of Transport, UK, 2000) have explored the types of constraints that can occur and have drawn up the following typology of constraints:

- **Spatial:** i.e. cannot get there at all,
- **Temporal:** i.e. cannot get there at the appropriate time,
- Financial: i.e. cannot afford to get there, and
- **Personal:** i.e. an individual's lack of the mental or physical equipment to handle the available means of mobility." (cited from MacDonald, 2003).

All of these constraints effectively link transport to social exclusion and deprivation:

"Inadequacies in transport provision may create barriers limiting certain individuals and groups from fully participating in the normal range of actives, including key activities such as employment, education, health care, shopping and social/recreational pursuits. This concern focuses attention on the link between transport provision and activity participation, in particular on the way in which the physical, financial, spatial, temporal and psychological constraints imposed by the transport system may specifically and cumulatively affect particular target groups." (ibid).

The superiority of the micro-level modelling approach in determining how constraints in access to transport translate into actual deprivation is readily apparent. However, micro-level gravity models are by their nature based on sample populations for whom individual-level data is available, in order to be able to assess their individual constraints as outlined above. Micro-level gravity studies are thus limited by their sample size and can generally only be carried out at national level, or possibly at regional level. Spatial analysis at local level therefore depends on the macro-level approach while assessing spatial deprivation comprehensively requires a combination of both approaches.

¹¹ The example for the micro-level gravity model is taken from a study on the development of a transport model which is sensitive to considerations of social exclusion (MacDonald 2003).

7.1.3 Food Deserts

Our third consideration of the application of gravity models relates to access to transport and social deprivation, and specifically to occurrences described as 'Food Deserts'.

Food Deserts have largely been identified through research conducted in the UK. They have been defined by the UK Government Health Minister (2002) as areas 'where people do not have easy access to healthy, fresh foods, particularly if they are poor and have limited mobility'. In Northern Ireland, for example, it is estimated that 32 per cent of households do not have easy access to a car and it is recognized that certain groups in Northern Ireland are amongst the poorest consumers throughout the UK. This phenomenon has been further exacerbated by the decisions of large grocery retailers to locate on the periphery of towns and the subsequent displacement effect on the independent retailers located in town centres. Among one of the consequences of this migration is that disadvantaged consumers can not access fresh, quality, nutritious foods at an affordable price. Preliminary research (Sinéad Furey *et al.,* 2002) indicates that certain consumer groups are excluded from equitable shopping provision – possibly to the detriment of their health status. This situation is further accentuated for non-car owners and lower-income family units who need to shop locally and more frequently than their higher-income, car-owning counterparts.

Most studies on food deserts are exclusively concerned with the effects of urban design on health and social exclusion. They are, however, also of considerable interest in the context of the lack of opportunities available to people living in rural areas. The interest is largely methodological, in that several of the studies on food deserts use micro and macro-level gravity models to assess both the affects of location, as well as the differential barriers to access for different household forms.

Scott and Horner (2004), for example, in their study Urban Form and Social Exclusion provide an in-depth analysis of food deserts in a U.S. setting. This study is of particular interest because it combines the use of the two gravity model approaches outlined in the previous sections. Rather than assuming that all persons located within certain areas are at risk of social exclusion/disadvantage, the study explicitly takes as its starting point that people living in the same location generally do not have equal accessibility to opportunities. Furthermore, the study is rich in the opportunities considered. These include access to ten different types of retail outlets (including shopping centres, department stores, convenience stores, grocery stores, petrol stations, pharmacies, etc), ten types of service providers (including post offices, banks, GPs, dentists, hospitals, social welfare agencies, child care services, etc.) and four types of leisure activities (restaurants, cinemas, video stores and bowling centres). In each case, accessibility is measured in 1, 2, 5, 10, 15, and 20 minute cumulative access times, thus giving a very detailed picture of the variability depending on location and opportunity sought. Furthermore, the study controls whether access times are different for rural versus urban dwellers (rural in the context of this study is taken to mean at the 'edge of town' as the overall study has an urban focus), different for single persons or single parents versus all others, different for low and high income households versus medium income households, different for men and women, and different for older residents (65+) in relation to other age groups.

This study, and others like it, demonstrate the feasibility of combining the use of the two gravity modelling approaches within an overall study design. At the same time, one has to recognise that studies like these are still in their infancy, and indeed are generally more concerned with developing a particular approach and demonstrating its feasibility and indicative outcomes, rather than providing comprehensive results. It is also the case that these types of studies require a high level of data input and computing power, thus making them relatively expensive. As a consequence, no study of this type has yet been able to cover a whole country. Their application is indeed generally limited to a comparatively small geographical region. On the upside, this makes Ireland – being a comparatively small country – an ideal candidate for a comprehensive study on the social geography of opportunities.

7.2 A Research Agenda to Measure Opportunity Deprivation in Ireland

In the earlier chapters of this report, we have shown that, particularly in Ireland, existing measurements of poverty and deprivation are overly reliant on income-related concepts, and that this situation is also reflected in the dominant spatial deprivation indices. Consultation with rural practitioners has identified the measurement of lack of opportunities as the single most important aspect in improving our understanding of the nature and extent of rural deprivation in Ireland. We have further shown that, unlike the comparison of personal characteristics and possessions, the concept of opportunities cannot be directly measured by way of census variables or data from administrative data sources, but requires the application of a more complex gravity modelling approach. This study has also shown that the concept of opportunity deprivation is closely intertwined with the question of access to transport.

We have outlined and promoted the use of two complementary approaches to modelling opportunity: the first a macro-level gravity modelling approach and the second a microsimulation approach. Methodologically speaking, the micro-simulation approach is superior when measuring access to opportunities in rural areas as it takes into account not only the characteristic of an area *per se*, but also whether people within that area are affected in different ways. Whether a person living in a remote rural area can, for example, avail of the opportunities offered in a neighbouring town or city crucially depends on the relative affluence of a household, the status of the individual household member, and whether an individual or household have access to a private car and, if not, the proximity and frequency of public transport services.

Despite being methodologically superior, the successful operationalisation of the microsimulation depends on the availability of extensive individual-level data, which can only be derived from sample surveys. This means that this type of approach can only be carried out for Ireland as a whole or, depending on its sample size, at regional level. On its own therefore, the approach will effectively provide additional 'headline' indicators at national level (as stipulated in the possibility of third tier Laeken indicators) to augment the primarily income-related poverty and consistent poverty measures that currently exist.

The macro-level gravity modelling approach, in contrast, can be carried out utilising existing large-scale databases at a spatially disaggregated level (e.g. at ED level). Its application is however limited to the identification of the relative opportunities associated with a particular area *per se*; i.e. it is not able to include consideration of differential access to opportunities by different individuals or households living in the same particular area.

The two approaches to gravity modelling are clearly complementary. Linked and used collectively they could assist in the development of a better understanding and measurement of opportunity deprivation. The next section contains an outline of how these two approaches might be applied in an Irish context.

7.2.1 A Micro-Level Study of Opportunity Deprivation

Background:

To date, the Irish national anti poverty indicators notably the 'at-risk-of-poverty' and 'consistent poverty' rates rely heavily on income-related indicators. The EU Lisbon Agreement specifically envisaged that, in addition to the first and second tier 'headline' measures agreed at the Laeken conference, individual governments would identify and develop other measures of deprivation, of particular importance in a national context. The present national anti-poverty indicators build on and use both the characteristics and the possessions of individuals. These indicators currently do not take into consideration the concept of the lack of opportunities as a key element of (rural) deprivation. Lack of opportunities, which is closely related to the question of access to public transport, is an important feature in rural deprivation. There is a valid argument that until current poverty/deprivation indicators include some consideration of the concept of 'opportunities' they could be seen to be inherently urban biased.

Objective:

To extend the Laeken Indicators at national and regional (NUTS 2 or 3) level by adding a tertiary measure that encapsulates opportunity deprivation.

Methodology:

The study should involve the application of a micro-simulation approach to establish the extent to which people are limited in their ability to take advantage of opportunities available, which the wider general population take for granted. The study should take into account different types of barriers (spatial, temporal, financial and personal barriers) that might prevent people accessing opportunties including accessing essential services for example: education, health, jobs, child care and key consumer services (e.g. post office, supermarket etc). It is likely that access to public transport and its mediating effect in creating or limiting access to opportunities will be a key item to be considered in the course of the study.

Possible Data Source(s):

This study will require a large sample survey to be conducted which will provide all the information necessary to establish the existing national anti-poverty indicators and, in addition, detailed information on the uptake of opportunities within and outside the area in which a person lives. One possibility to undertake this type of survey might be to add the relevant questions to the EU-SILC survey on a once-off basis.

Cost and Timing:

It is difficult to specify the exact cost of this study, and indeed when it might be undertaken. This is because of our uncertainty in relation to whether the EU-SILC could be extended on a one-off basis to provide the data necessary for the study. We estimate the study would take a minimum of a six months and that the cost could be in the region of \in 100,000.

How to go about it?

As a first step, we suggest the RADC/Pobal make appropriate representation to the Combat Poverty Agency, the Office for Social Inclusion and the Department of Community, Rural and Gaeltacht Affairs to seek support in principal and possibly a commitment of funding for the implementation of the study. Technical advice with regard to the development and specification of the micro-simulation study could be sought from the ESRI. Assuming there is broad agreement on the worthiness of this study and a willingness to include its findings in the national anti-poverty and social inclusion monitoring framework, representation should be made to the CSO with the view to establishing whether the EU-SILC might be extended on a once-off basis (and, if successful, at regular intervals thereafter), to include a relevant section on opportunity deprivation.

7.2.2 A macro-level gravity model of Opportunity Deprivation

Background:

To date, Irish deprivation indices (Haase & Pratschke 2005, SAHRU 2004) are exclusively based on census variables which express people's individual characteristics or possessions, but fail to take into account how the area where a person lives affects their ability to access opportunities. It is widely believed that the lack of access to opportunities is an important feature of rural deprivation and that the current deprivation indices, because of their lack of consideration of the concept of 'opportunities' may display some urban bias.

Objective:

To develop a single ED-specific (local level) measure of 'opportunity' which could be included in the construction of any future Irish deprivation indices.

Methodology:

The study should involve the development and application of a macro-level modified gravity model to provide a measure of opportunity deprivation which will, in part, be related to the differential access to transport and specifically public transport. The study is likely to include the collection of comprehensive data on the provision of public transport, the proportion of population that resides within a defined distance to the transport access points (bus and train stops, etc), as well as devising a methodology by which to describe the relative attractiveness and accessibility of local labour markets and essential services to rural populations.

Possible Data Source(s):

Access points to public transport:

This might comprise the geocoding of all existing bus, train and tram stops throughout the country. Initial inquiries suggest that such directory exists for Dublin Bus, but it is not known whether similar directories exist for the other public transport providers

Population shares within defined distance to existing access points to public transport.

UK studies (c.f. MacDonald 2003), have used the proportion of the ED population that lives within walking distance (400m) of a bus or train stop. Such an approach requires the overlay of the Geodirectory (this is the An Post database of the 1.4m private residential delivery points in Ireland) with the ED boundaries (Ordnance Survey of Ireland) and the geo-coded locations of public transport (bus and train) stops.

Quality of labour markets and availability of public services:

The assessment of the quality of labour markets and availability of public services has at least two components: firstly, it requires the definition of local labour markets or services areas (e.g. in form of polygons around the 193 Census towns) and, secondly, an estimate of the number of firms and essential services within each of these distinct areas. This could possibly be obtained from commercial databases, such as Compass, Nielsen or the IDS Business database.

Cost and Timing:

We estimate the cost of the macro-level modified gravity model to be in the region of \in 100,000. The exact cost will depend on the cost of the geocoding of the various public transport access points and the extent and cost of the data currently available from the existing commercial databases to be incorporated in the study. We estimate the study would take approximately six months assuming the necessary data is readily available.

How to go about it?

As a first step, we would suggest that RADC/Pobal make appropriate representation to the Combat Poverty Agency, the Department of Community, Rural and Gaeltacht Affairs and possibly the Department of the Environment, Heritage and Local Government and the Department of Transport to firstly seek their support in principle and their engagement in the implementation of study. We believe that all of these departments/agencies would have a strong interest in the study and could potentially at least be possible sources for the funding of the study.

Technical advice with regard to the application and development of this particular form of the gravity model should be sought from the National Centre for Geocomputation (NCG) at NUI Maynooth.

If generally supported by the Departments and Agencies, representation should be made to Dublin Bus and CIE and/or the local authorities to establish whether there are geo-coded listings of all public transport access points.

8 Conclusions and Recommendations

This chapter summarises our key findings and makes recommendations in relation to improving existing measures of rural deprivation.

8.1 Conclusions

- 1. While definitions of rurality may have merit in terms of describing a particular area and could possibly provide some insight into its developmental needs, rurality is a poor indicator of the extent to which the people living in an particular area are experiencing deprivation and exclusion.
- 2. EU level indicators on poverty and social exclusion do not and will not reach below NUTS 3 (local authority/county) level.
- 3. Spatial deprivation indices (at ED level) will increasingly be judged on their ability to 'measure up' to Laeken Indicators at aggregated (NUTS 3) level.
- 4. At EU level, there is a stronger emphasis on the development of indicators beyond the predominantly income related at-risk-of-poverty and consistent poverty rates currently used in Ireland.
- 5. There is a growing awareness that Ireland has in the past at least, relied too much on the use of income related indicators alone.
- 6. The methodology of index construction has to be discussed separately from the Laeken indicators.
- 7. There is a danger at EU and Irish level that spatial indicators might be reduced to the aggregation of individually measured characteristics.
- 8. Both at national and EU level, there is a lack of consideration of measures related to 'access to opportunities', which are central to understanding deprivation in rural areas.

8.2 **Recommendations**

- 1. The Combat Poverty Agency and the Office for Social Inclusion be approached to provide support for the production of non-income related indicators at national (NUTS 1), regional (NUTS 2) and local authority/county NUTS 3 levels as detailed in the Lisbon agenda.
- 2. A close fit to the at-risk-of-poverty and consistent poverty rates should not be the only benchmark against which spatially disaggregated deprivation indices should be judged.
- 3. Local poverty indices need to be more sensitive to the measurement of rural deprivation. For example
 - a. Concepts developed at the level of the individual should not automatically be applied at the spatial level,
 - b. Approaches to index construction should be based on a clear conceptualisation of dimensions and not be reduced to a mere additive approach of domains,
 - c. Approaches should facilitate the tracking of change over time (as exemplified in the 2005 Haase & Pratschke Index of Relative Affluence and Deprivation)
 - d. Consideration should be given to the concept of opportunity which is critical in the appropriate measurement of rural deprivation.
- 4. Two studies be undertaken to operationalise the measurement of opportunities in the Irish context:

- a. A micro-simulation model : to extend the Laeken Indicators at national and regional level
- b. a modified gravity model to facilitate the enhancement of future local poverty indices, (including the Haase & Pratschke 2005 deprivation index) from a rural perspective

9 Bibliography

Anderson, R. (2004) *Quality of Life in Rural Europe,* European Foundation of Improving Living & Working Conditions.

Asthana, S., Halliday, J., Brigham, P. & Gibson, A. (2002) *Rural Deprivation and Service Need: A Review of the Literature and an Assessment of Indicators for Rural Service Planning.* Bristol: South West Public Health Observatory.

Asthana, S., Brigham, P., Halliday, J., Gibson, A., Mackenzie, I., Dicker, J., Floyd, G., Moon, G. (2001) *Review of the Effectiveness of measuring Rural Deprivation.* South West Public Health Observatory.

Bailey, N., Spratt, J., Pickering, J., Goodlad, R., and Shucksmith, M. (2004) *Deprivation and Social Exclusion in Argyll and Bute – Report to the Community Planning Partnership,* Scottish centre for Research on Social Justice, Universities of Glasgow and Aberdeen.

Ballas, D., Kalogeresis, T., & Labrianidis L. (2003) *A comparative study of typologies for rural areas in Europe.* Paper presented to the 43rd European Congress of the Regional Science Association, Jyväskylä, Finland, 27-30 August 2003

Bartholomew, D. (1988) *Measuring Social Disadvantage and Additional Educational Needs*. A Report to the Department of the Environment. London: LSE Department of Statistical and Mathematical Sciences.

Bell, D. (1990) *Data Sources for Area Prioritisation*: Section A – Review and Analytical Topics. Edinburgh: DG Information Services.

Burchardt, T., Le Grand, J. and Piachaud, D. (2002) Understanding Social Exclusion. Oxford University Press, Oxford.

Callan, T., Layte, R., Nolan, B., Watson, D., Whelan, C., T., Williams, J., Maitre, B., (1999) *Monitoring Poverty Trends: Data from the 1997 Living in Ireland Survey*. Stationery Office and Combat Poverty Agency, Dublin.

Carstairs, V. and Morris, R. (1991) *Deprivation and Health in Scotland.* Aberdeen: Aberdeen University Press .

Combat Poverty Agency (1998) *Submission for White Paper on Rural Development*, Dublin: Author.

Combat Poverty Agency (2004), Strategic Plan 2005-2007, Dublin: Author.

Commins, P. (2004) 'Poverty and Social Exclusion in Rural Areas: Characteristics, Processes and Research Issues' in *Sociologia Ruralis*, Vol. 44, No. 1, p. 60-75.

Cook, S., Poole, M.A., Pringle, D.G. and Moore, A.J. (2000) Comparative Spatial Deprivation in Ireland: A Cross Border Analysis. Dublin: Oak Tree Press.

Coombes *et al.* (1995) "Towards an Index of Deprivation: A Review of Alternative Approaches" Part 1 in Department of the Environment, UK (1995) cit. op.

Curtin C., T. Haase and H. Tovey, eds. (1996) *Poverty in Rural Ireland - A Political Economy Perspective*, Dublin: Combat Poverty Agency & Oak Tree Press.

De Ferranti, D., Perry, G.E., Foster, W., Lederman, D., Valdes, A. (2005) *Beyond the City: The Rural Contribution to Development*, Washington DC: The World Bank.

Department of Environment, Food and Rural Affairs, UK (2004) *Rural Strategy 2004*, <u>http://www.defra.gov.uk/rural/strategy/annex_a.htm</u>

Department of the Environment and Local Government (2002) The National Spatial Strategy: People, Places and Potential, Dublin: Author.

Department of the Environment, UK (1983) 1981 Deprivation Index. London: HMSO.

Department of the Environment, UK (1995) *1991 Deprivation Index: A Review of Approaches and a Matrix of Results*. London: HMSO.

Duncan, G. & Aber, J. L. (1997) 'Neighbourhood models and measures' in J. Brooks-Gunn et al. (eds.) *Neighbourhood Poverty: Context and Consequences for Children*. Vol. I. New York: Russell Sage Foundation.

European Commission (2002) *The Social Inclusion Process*, Office for Official Publications of the European Communities, Brussels. <u>http://europa.eu.int/comm/employment_social/soc-prot/soc-incl/index_en.htm</u>

European Commission (2003) *Regional Indicators to Reflect Social Exclusion and Poverty* (VT/2003/43), <u>http://europa.eu.int/comm/employment_social/social_inclusion/docs/regionalindicators_en.pdf</u>

European Commission (2005) *Joint Report on Social Protection and Social Inclusion*. <u>http://europa.eu.int/comm/employment_social/social_inclusion/docs/jointreport_2005_en.pdf</u>

Forrest, R. & Gordon, D. (1995) *People and Places: Social and Economic Distinctions in England.* Vol. 2. Bristol: School for Advanced Urban Studies.

Frawley, J., O'Meara, M., Whirisky, J. (2005) *County Galway Rural Resource Study,* Galway: Teagasc, Galway Rural Development Company.

Gallego, F.J. () *Mapping Rural/Urban Areas from Population Density Grids*, Italy, Institute for Environment and Sustainability.

Gordon, D. (1995) 'Census based deprivation indices: their weighting and validation' in *Journal of Epidemiology and Community Health*, No. 49, Supplement 2, pp. S39-S44.

Government of Ireland (1997) *National Action Plan against Poverty and Social Exclusion* 2003–2005. <u>http://www.socialinclusion.ie/publications/napincl_plan0305.pdf</u>

Government of Ireland (1997) *Sharing in Progress - National Anti-Poverty Strategy,* Dublin: Author.

Haase, T. (1998) "The Role of Data in Policies for Distressed Areas" in *Integrating Distressed Urban Areas*, Paris: OECD.

Haase, T. and J. Pratschke (2005) *Deprivation and its Spatial Articulation in the Republic of Ireland – New Measures of Deprivation based on the Census of Population, 1991, 1996 and 2002*, Dublin: Pobal. <u>http://www.pobal.ie/media/Deprivationanditsspatialarticulation.pdf</u>

Haase, T. and K. McKeown (2003) Developing Disadvantaged Areas through Area-Based Initiatives – Reflections on over a Decade of Local Development Strategies, Dublin: Pobal.

Higgs, G. & White, S. (2000) "Alternatives to Census-based Indicators of Social Disadvantage in Rural Communities", *Progress in Planning, 53, 1-81,* Pergamon.

Kenway, P., Parsons, N., Carr, J. & Palmer, G. (2005) Monitoring poverty and social exclusion in Wales 2005. Joseph Rowntree Foundation, York.

Leavy, A. (2001) The Socio-Economic Sustainability of Rural Areas in Ireland, Report No. 4497, Teagasc.

MacDonald, M. (2003) *Social Inclusion: Transport Aspects,* Centre for Transport Studies, Imperial College, University of Leeds.

Madanipour, A. (1998) 'Social Exclusion and space' in Madanipour, A., Cars, G. and Allen, J. (eds) *Social Exclusion in European Cities.* London: Jessica Kingsley Publishers.

Noble B. et al. (2000) *Measuring Multiple Deprivation at the Local Level: The Indices of Deprivation 2000.* London: Department of the Environment, Transport and the Regions.

Noble B. et al. (2001) *Measures of Deprivation in Northern Ireland*, Belfast: Northern Ireland Statistics and Research Agency.

Nolan, B., Whelan, C.T., and Williams, J. (1998) *Where are Poor Households? The Spatial Distribution of Poverty and Deprivation in Ireland.* Dublin: Oak Tree Press in association with Combat Poverty Agency

Nolan, B., Gannon, B., Layte, R., Watson, D., Whelan, C. and Williams, J. (2002) *Monitoring Poverty Trends in Ireland: Results from the 2000 Living in Ireland Survey*. Dublin: Economic and Social Research Institute.

OECD (1994) Creating Rural Indicators, Paris

Office of the Deputy Prime Minister, NI (2002) *A Review of Urban and Rural Definitions*: Project Report.

Pion Economics (2000) *Accounting for Rural Deprivation.* Final Report. Unpublished Study undertaken for Five Rural Councils in Scotland.

Power, A. and Wilson, W.J. (2000) *Social Exclusion and the Future of Cities,* Centre for the Analysis of Social Exclusion, CASE Paper 35, LSE, London.

Power, J. and Johns, C. (2005) Quality of Life Research, Criteria and System

Robson, B., Bradford, M. and Tye, R. (1995) *A Matrix of Deprivation in English Authorities, 1991.* Part 2 in Department of the Environment, UK (1995) cit. op.

Robson, B., Bradford, M. & Deas, I. (1994) *Relative Deprivation in Northern Ireland*. Manchester: Centre for Urban Policy Studies, Manchester University.

SAHRU (1997) A National Deprivation Index for Health and Health Services Research. Dublin: TCD

Scott, D.M. and Horner, M.W. (2004) *Urban Form and Social Exclusion: An Exploratory Analysis in a U.S. Setting.* Centre for Spatial Analysis, McMaster University.

Shucksmith, M., (2003) *Social Inclusion in Rural Areas.* A Review of Recent Research. Report to DEFRA, Countryside Agency and ESRC.

Social Exclusion Unit (2002) *Making the Connections: Transport and Social Exclusion*, The Stationery Office, London.

http://www.cabinet-office.gov.uk/seu/publications/reports/html/making%20the%20Connections/

Dominic Stead (2002) *Urban Rural Relationships in Europe: Concepts and Definitions.* Working Paper 1, OTB Research Institute for Housing, Urban and Mobility Studies, Delft University of Technology. Townsend, P., Phillimore, P. and Beattie, A. (1988) *Health and Deprivation: Inequality and the North*. London: Croom Helm

Townsend (1993) *The International Analysis of Poverty*. London: Harvester Wheatsheaf. **Tunstall, R., & Lupton R., (2003)** *Is Targeting Deprived Areas an Effective Means to Reach Poor People? An assessment of one rationale for area based funding programmes*. CASE Paper 70, London School of Economics.

United Nations (1999) World Urbanization Prospects, The 1999 Revision, United Nations.

Walsh, J. and Martin, B.S. (2000) *Irish Rural Structures and Gaeltacht Areas*, Background Study to the National Spatial Strategy, Centre for Local and Regional Studies, NUI Maynooth.

Watson, D. et al. (2005) Mapping Poverty: National, Regional and County Patterns. Dublin: CPA, ESRI



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