



Conceptualisation of Rural-Urban Relations and Synergies

Deliverable 1.1

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1 Introduction

This report critically reviews social science perspectives on rural-urban relations and their incorporation into public policy and governance structures as a foundation for the Horizon 2020 ROBUST (Rural-Urban Outlooks: Unlocking Synergies). The core objectives of ROBUST are to a) advance our understanding of the interactions and dependencies between rural, peri-urban and urban areas and b) to identify and promote policies, governance models and practices that foster mutually beneficial relations. In pursuing these objectives, ROBUST builds on an extensive body of work in human geography, sociology, planning and regional science that has repeatedly explored rural-urban differences, relations and interactions over several decades, and that has informed the development of rural and urban policy and governance arrangements. Yet, ROBUST also responds to concerns about the appropriateness of current policy and governance approaches for managing the challenges of the twenty-first century. In particular, it questions the prevailing dichotomy in which the rural and the urban have been conventionally conceived as separate and distinct arenas for policy and governance, and seeks to instead promote the management of rural-urban synergies. As such, ROBUST aims to develop new conceptual and methodological approaches that can provide original insights into the dynamics of interactions between urban and rural areas, and point to improved governance arrangements and policy synergies.

Accordingly, this report represents an initial step towards this goal by surveying the academic context of the ROBUST research and by outlining the principles for a new conceptual approach based on a relational understanding of space. This is articulated through a sequence of sections. The next section briefly summarises the evolution of social science research on rural-urban relations and specifically reviews the literature in respect to four key aspects: the definition and delimitation of rural and urban space; rural-urban interactions; the rural-urban interface and processes of urbanization and rururbanization. It is argued that the diverse approaches encountered in these reviews reflect shifting conceptualisations of space, and particularly a move within social science from an absolutist understanding of space towards more relational perspectives. The subsequent section thus draws on Jones and Woods (2013) and Brown and Shucksmith (2017) to elaborate a three-fold conceptualisation of space and discusses its application in relation to rural and urban space and the implications for the ROBUST framework.

The remaining section of the report further expands the discussion to consider how different conceptualisations of space are implicitly reproduced in policies for spatial planning and economic development and in governance structures, including rural-urban partnerships and the city-region model. In posing these questions, the report sets up lines of enquiry that will be developed through subsequent tasks in Work Package 1 of ROBUST, including interviews with stakeholders, an expert workshop and further literature and policy reviews, culminating in the articulation of an action- and policy-oriented conceptual and methodological framework.

The discussion presented in this report is based on a comprehensive literature review developed from an initial search of the Scopus database of scientific publications for the period since 1992 (using keywords including 'rural-urban interactions', 'rural-urban linkages', 'rural-urban synergies', 'rural-urban definition', 'rural-urban mapping', 'rural-urban fringe', 'rural-urban continuum', 'rural-urban + policy', 'rural-urban + governance', 'peri-urban', 'rurban', 'rural-urban + spatial planning' and 'city-region'), background knowledge and recommendations from consortium partners. ROBUST consortium partners additionally provided summaries of relevant literature in European languages other than English, and examples of policies and governance structures in their own countries. A glossary of key terms can be found in the appendix.

2 Approaches to Rural-Urban Relations

2.1 Historical Perspectives on the Rural and the Urban

The distinction between the city and the country, urban and rural, is long entrenched in European civilization. The etymological roots of the terms ‘urban’ and ‘rural’ extend back at least as far as the classical Latin words *urbs* (city) and *rus* (open space), and the words have travelled from Latin into most European languages (Woods, 2011a) (although there is not necessarily an equivalent dualism in languages not influenced by Latin, as Remoundou and Gkartzios 2017 note for Greek). Significantly, the binary relationship implied in the terms was never equal – the city or *urbs* was always the object, with the rural always the ‘other’, the non-urban, the open space beyond the city. As Jean and PÉrigord observe for their use in French, “Rural is commonly opposed to urban: rural is everything that is not urban, a vision that is not without ambiguity” (2009: 12).¹ The precise boundary between rural and urban, therefore, has always been open to interpretation and dispute.

Furthermore, from classical Rome onwards the concepts of urban and rural have been extended beyond geographical referents to acquire particular cultural and moral associations, as the English literary theorist Raymond Williams noted (see also J. R. Short 1991, B. Short 2006):

On the actual settlements, which in the real history have been astonishingly varied, powerful feelings have gathered and have been generalized. On the country has gathered the idea of a natural way of life; of peace, innocence, and simple virtue. On the city has gathered the idea of an achieved centre: of learning, communication, light. Powerful hostile associations have also developed: on the city as a place of noise, worldliness and ambition; on the country as a place of backwardness, ignorance, limitation. A contrast between city and country, as fundamental ways of life, reaches back into classical times (Williams, 1973: 9)

Such cultural associations served to exaggerate the contrast between urban and rural spaces, and urban and rural societies, and their distinctiveness, obscuring the scale and complexity of connections between the city and the country, that “the countryside is in urban hands already, as it has been since the city generated its trade and capital” (Barnett, 1998: 342). The connections included the dependency of cities on rural areas as sources of food, minerals, building materials and labour, as well as for recreation and as a defensive buffer, and the reliance of rural communities on cities as sources of capital, manufactured goods and protection (Woods, 2011a).

Yet, the cultural strength of the rural-urban dualism saw it incorporated into early modern scientific scholarship, as a form of classification, as an explanation for observed patterns, and as a way of ordering fields of scientific research. In nineteenth-century sociology, for example, the rural and the (newly industrialised) urban were contrasted as two distinct models of social organization – *Gemeinschaft* and *Gesellschaft* in Ferdinand Tönnies’s formulation – with the latter representing progress on the former (Bonner 1998). The association of modernity with urban society was consolidated with Max Weber’s seminal volume, *The City* [1921], laying the foundations for urban sociology as a distinct field. As Bonner (1998) argues, Weber was also one of the first sociologists to question the validity of ‘rural’ as a sociological category with explanatory potential in his early work comparing rural societies in Europe and North America, and as such the model of urban modernity articulated in *The City* could be read as emphasizing the inter-connection of urban and rural space and the extension forms into rural space. In practice, however, the development of urban sociology was mirrored by the

¹ “À *rural* est oppose communément *urbain*: est *rural* tout ce qui n’est pas *urbain*, vision qui ne va pas sans une certaine ambiguïté”

emergence of rural sociology as a separate field in both Europe and North America. Rural sociology focused on the rural as an essentially agrarian society, yet it also reflected the tenets of mainstream sociology in adopting a normative stance that promoted the modernization of rural society (Mormont 1990; Garner, 1997; Woods 2005). The developmentalist agenda pursued by rural sociology could accordingly be argued to have contributed to the further integration of city and country and the narrowing of rural-urban differences, but at the same time, the organization of rural sociology around its own disciplinary infrastructure – subject associations, journals, and often in the United States separate university departments – provided a vested interest in perpetuating the rural-urban binary even as post-war sociologists such as Herbert Gans and Ray Pahl followed Weber in critiquing its validity.

The separation of rural and urban analysis was less pronounced in early geographical research, where the prevalence of empirical regional geography commonly led to rural and urban areas being studied together as parts of a pre-defined region (Woods, 2005). These studies included investigation of rural-urban relationships, including economic connections between agriculture and industry, and settlement patterns, which in their most theoretical form were conceptualised in models such as Von Thünen's concentric model of land use radiating from the city [1826], and Christaller's Central Place Theory of settlement hierarchies [1930]. The assertion of the systems theory approach in human geography after the Second World War, however, prompted specialisation with a new urban geography focused on the analysis of urban systems and the marginalisation of rural research. In contrast to sociology, a parallel 'rural geography' was slower to develop, and took different paths in different countries. The boldest attempt to assert rural distinctiveness was arguably in the United States where rural geography tended to focus on the study and documentation of rural landscapes (Woods, 2005; see for example Hart 1975), whilst an emphasis on analysis of rural settlement forms and functions in Germany was in part motivated by concerns to identify and protect 'true villages' and to resist urbanization (Wilson et al., 2010).

The first documented use of 'rural geography' as a term was in France in the 1920s, but French geographers conflated rural and agricultural, with 'rural geography' (*géographie rurale*) commonly applied specifically to the study of agriculture rather than non-urban spaces (Bodiguel et al., 1990; Jean and Périgord 2009; see for example George, 1963), and did not assume a wider meaning until later. In Britain, similarly, the initial emphasis was on agricultural geography, with a broader 'rural geography' encompassing the integrated study of the social, economic and environmental dimensions of 'rural' space not established until the 1970s (Woods, 2005, see for example Clout, 1972).

2.2 Debating the Relevance of the Rural-Urban Dichotomy

The formalization of the rural-urban dichotomy in the disciplinary organization of the social sciences during the late twentieth century occurred because of, not despite of, intensified urbanization, the encroachment of urban forms and practices into rural spaces and societies, and the increased integration of rural and urban economies. Rural geographers and rural sociologists were frequently motivated by a desire to identify and document traditional rural forms that they considered to be under threat from urbanization, and in so doing implicitly contributed to the notion of the rural-urban binary. In many cases, these studies fell back on agriculture as the characteristic feature that differentiated rural from urban, yet as the significance of agriculture in rural economies and labour markets in the global north decreased sharply the conflation of rural and agricultural became less sustainable, compelling rural social scientists to explore other ways of defining their field.

At the same time, the same observed trends of extended urbanization and increased urban-rural integration led other researchers to question the validity of the rural-urban binary. In sociology and anthropology, a series

of community studies conducted after the Second World War had revealed the extent of differentiation between rural communities, as well as finding elements of supposedly 'urban' social forms in 'rural' communities and elements of supposedly 'rural' social forms in 'urban' communities (Pahl, 1966; Woods, 2005). One response was to shift from an absolutist view of 'rural' and 'urban' as discrete spaces, to a more relativist position in which rural and urban formed the opposing poles of a continuum. Communities were hence placed at various points along the rural-urban continuum according to their geographical location, with the assumption that the relative location on the continuum would be reflected in the mix of urban and rural social forms in the community.

As the basis for a typology that permitted a more differentiated picture of rural-urban contexts, the idea of the rural-urban continuum proved highly influential, for example becoming encoded in the 'Rural-Urban Continuum Codes' produced by the USDA in the 1970s to classify counties in the USA (Hines et al., 1975). The idea was replicated within regional science by the concept of the 'urban-rural gradient', which similarly envisages a continuous transition from urban to rural extremes, primarily indicated by land use and population density. The concept of the 'urban-rural gradient' continues to be widely used as a spatial typology to contextualise data analysis in economics and in ecological research (see for example Andre et al., 2014).

Indeed, in spite of its wider influence, the usefulness of the rural-urban continuum as a typology was critiqued within sociology as early as the 1960s, both in relation to its presumed linearity and its explanatory potential (Garner, 2017). Pahl (1966), for instance, noted that different combinations of *gemeinschaftlich* and *gesellschaftlich* relations could be found in different social groups inhabiting the same places at both more-rural and more-urban points along the continuum, not necessarily in a consistent linear order, and suggested that settlement type was less important than class and life-cycle in determining ways of life. Accordingly, Pahl proposed that the rural-urban continuum should be understood not as a typology, but as a process constituted by the meshing together of different 'textures' of relationships between social groups involved in negotiating tensions between the local and the global in different settings.

In articulating this critique, Pahl pre-figured the later challenge to the rural-urban dichotomy from political economy perspectives, and particularly the locality debates within human geography in the 1980s. The development of a neo-Marxist political economy approach in urban geography during the 1970s had conceptualised cities and urban life as the products of capitalist social and economic relations configured at the global scale (Harvey 1973), thus prompting debate on the capacity of localities to act within global structures to shape economic restructuring (see Cooke 1989, Duncan 1989, Harvey 1987, Smith 1987; also Jones and Woods 2013). Although the locality debates did not directly address the question of the rural-urban dichotomy, its implications, as well as the broader engagement of rural geographers and rural sociologists with political-economy theory, had a strong influence on the practice of rural research in the 1980s and the conceptualisation of the 'rural' (Cloke 1989). This can be observed, for example, in research by Cloke and Little (1990) on locality effects in the land use planning system in England and Wales that asked whether a distinctive 'rural state' could be identified, and concluded that it could not.

Political-economy approaches hence tended to play down the significance of the rural-urban dichotomy, though some later political-economy analyses, particularly those influenced by regulation theory, returned to examining the rural-urban binary as a product of political-economic processes. Cloke and Goodwin (1992) proposed that the relative influence of different capital fractions in different localities – agrarian capital in rural localities versus industrial capital in urban localities, or the growing significance of the 'service class' in rural localities in the UK, for instance – produced different 'local structured coherences' in which, for example, control over land management and development may be exerted to protect the perceived 'rural character' of a locality and the capital interests invested in that character (see also Marsden et al 1993, Murdoch and Marsden

1994, who make a similar argument in their work on the 'differentiated countryside' in the UK). Basile and Cecchi (2001) in Italy, meanwhile, suggested that Fordism had actively encouraged a sharp distinction in the roles of cities and countryside, as part of the spatial division of labour, but that the transition to a post-Fordist economy had reverse the trend with the emergence of new modes of consumption based on differentiation and typicality, and the emergence of new post-industrial local systems scattered throughout urban and rural territory.

Taken together with less theoretically-informed critiques based on empirical observation of rural-urban inter-connections and the similarities between rural and urban societies (see for example Freidland, 1982; Janvier, 1993), the logic of the political-economy approach led to the conclusion that the categories of 'rural' and 'urban' had no explanatory validity, and thus brought the usefulness of the rural-urban binary as a form of classification into question. Hoggart (1990), for instance, argued that there was "too much laxity" in empirical analysis in rural research, noting that "too often, based on their supposed rural attributes, researchers have assumed that places are equivalent to one another when they are dominated by very different causal processes" (p 245). As such, he contended, "the broad category 'rural' is obfuscatory, whether the aim is description or theoretical evaluation, since intra-rural differences can be enormous and rural-urban similarities can be sharp" (ibid.). Accordingly, Hoggart called for more integrated and comparative research across rural and urban settings, abandoning 'rural' as either a parameter for selecting case studies or as an explanatory variable.

Such reflections within rural studies, however, arguably simply reflected a catching-up with mainstream sociology and human geography, where 'rural' and 'urban' had already eclipsed as categories for analysis by categories such as class, gender, race, ethnicity and age, examined within the context of what was assumed to be a pervasive urban society. This assumption later reached its apogee with the concept of 'planetary urbanization' (Brenner, 2014a), which adopts and develops Lefebvre's assertion that "society has been completely urbanized" (Lefebvre, 1970) to propose that all parts of the world are now in effect urban, and thus can be researched through the lens of urban studies alone. This trajectory can be read as the urban subsumption of the rural, but it also arguably brings the notion of 'the city' into question, as urbanism is detached from the physical entity of the city (Lefebvre, 1970). Cacciari (2004), for example, argues that if cities are everywhere then there are no cities anymore (see also Pascale, 2009); whilst Brenner (2014b) presents the concept of planetary urbanization as superseding "the urban/non-urban divide that has long anchored the epistemology of urban research, and on this basis, to develop a new vision of urban theory *without an outside*" (page 15).

Yet, the apparent dismissal of the 'rural' as a meaningful category for scientific research jarred with its continuing cultural and emotional significance as a source of identity and way of making sense of everyday experience (Bell, 1992). Recognition of these aspects came with the 'cultural turn' in social science and the adoption of concepts from post-structuralism, including the idea that 'rural' and 'urban' are social constructs, that is that they have no objective, inherent essence, but are brought into being by discursive practice (our use of language and representation in art, literature, media, policy etc) and social convention (that people might act in certain ways to fit expected norms for the city or countryside) (Cloke, 2006; Halfacree, 1993; Woods, 2005, 2011a). This had a number of implications for thinking about rural-urban relations:

- 1) As 'rural' and 'urban' are social constructs, efforts to define, measure and map rural and urban spaces cannot capture an objective reality but are themselves mechanisms through which the rural and the urban are created.

- 2) As social constructs, 'rural' and 'urban' may be detached from their spatial referents. An object, a practice, a custom, an experience, a person, etc., might be imagined as 'rural' even if located in a spatial context considered to be urban, and vice versa.
- 3) There are multiple different social constructions, or discourses, of the rural (and of the urban), which each imagine and understand the country (or the city) differently. Power imbalances between social groups mean that some groups are better able to articulate and impose their discourses of the rural, but no one discourse is more valid or 'correct' than any other.
- 4) As there are contradictions between different discourses of the rural, conflicts can arise over whether particular places or sites are rural or urban, and over what it means for a place to be 'rural', especially in relation to development and land management issues (Mormont, 1987; 1990).

The cultural turn inspired a new wave of rural research, especially (though not exclusively) in British rural geography, that focused on these issues, examining the construction and performance of rural identities, and the articulation and contestation of lay, media and official discourses of rurality, as well as the experiences and discourses of 'othered' groups within rural societies (see for example Cattivelli, 2013; Cloke, 1997, 2003; Cloke and Little, 1997; Haartsen et al., 2000; Jones, 1995; Murdoch and Pratt, 1993; Philo, 1992; Woods, 2005). However, Cloke (2006) summarises a series of critiques that have been directed at the cultural turn for desocializing, dematerializing and depoliticizing the social sciences in general, which he argues could also be applied specifically to rural studies. One response to these critiques has been a turn back towards re-materializing the rural, which Woods (2009) suggests has involved three parallel elements. First, the exploration of the material conditions associated with the geographical context of rural localities, without attributing typicality or causality, for example in work of peripherality and marginality (e.g. Conradson and Pawson, 2009; Lang et al., 2015; Novotný, Mazur and Egedy, 2015; Paulgaard, 2008); Second, a renewed effort to define, categorize and map rural space according to material characteristics and functions, employing new GIS, remote sensing and georeferencing technologies – as discussed further in section 3.1 below; Third, the conceptualisation of rural space as hybrid and co-constituted by human and non-human material and discursive entities, drawing particularly on actor-network theory and assemblage thinking – as discussed further in section 4.4 below.

The conceptualisation of 'rural' and 'urban' has hence evolved through a number of different approaches, examples of all of which can be found in contemporary research. Halfacree (1993) classified these into four categories – descriptive definitions; socio-cultural definitions; the rural as locality; and the rural as social representation; whilst Cloke (2006) similarly categorizes functional, political-economic and social constructivist approaches, and points towards a fourth approach represented by the concept of hybridity (see Table 1) (also Hruska, 2014). These different ways of framing the rural, and rural-urban relations, are cross-cut by different objects of enquiry and empirical concerns in the study of rural-urban relations, which are discussed in the next section.

Table 1: Summary of key conceptual approaches to defining rural space and society

Halfacree (1993) categorization	Cloke (2006) categorization	Main Features	Examples	Critique
Descriptive approaches	Functional concepts	<p>Rural as a bounded space defined by material functions, landscape type or physical characteristics of territory (e.g. population size and density, agricultural land use, agricultural employment).</p> <p>Influential in Geography and Planning up to 1980s</p>	Beluszky (1965), Chapuis and Brossard (1986), Cloke (1977), Cloke and Edwards (1986), Clout (1972), Derruau (1967), Dion (1934), Hart (1975), Larrubia (1998), Mathieu (1990), Rosenqvist (2002).	<p>“Descriptive methods only describe the rural, they do not define it themselves” (Halfacree, 1993: 24).</p> <p>“empirical work conducted on this basis is often flawed because of arbitrary spatial boundaries of available data, or because of the arbitrary nature of supposed indicators of rurality” (Cloke 2006: 22).</p>
Socio-cultural approaches	Functional concepts	<p>Rural society defined by social and cultural characteristics, values and behaviours, in contrast to features of urban society (e.g. agrarian society, Gemeinschaft or community, self-reliance).</p> <p>Influential in Sociology and Anthropology up to 1980s.</p>	Bonnamour (1973), Chiva (1958), Erdei (1974), Frankenberg (1966), Glenn and Hill (1977), Parain (1970), Redfield (1941), Tönnies (1957), Wirth (1938)	<p>Supposed ‘rural’ features can be found in cities and supposed ‘urban’ features can be found in the countryside (Pahl, 1966).</p> <p>Other social categories such as class, gender, ethnicity more significant.</p>
Rural as locality	Political-economic concepts	<p>Rural localities defined by particular political-economic functions or characteristics associated with primary production or collective consumption and linked into wider political-economic structures and processes.</p> <p>Influential and debated in 1980s and early 1990s.</p>	Bradley and Lowe (1984), Camarero (1993), Cloke (1989), Cloke and Goodwin (1992), Cloke and Little (1990), Moseley (1980), Newby et al (1978), Newby (1986). Sotte et al (2012).	“The rural as locality approached faltered because none of the structural features claimed to be rural could be proven to be uniquely or intrinsically rural” (Woods, 2005: 10)

Halfacree (1993) categorization	Cloke (2006) categorization	Main Features	Examples	Critique
				Many differences between supposedly 'rural' localities and inter-dependencies and commonalities with 'urban' localities (e.g. Hoggart 1990)
Rural as social representation	Social constructivist concepts	<p>Rural as a 'social construct' or 'state of mind', produced through discourses, practices and representations that associate certain meanings, appearances, values and identities with 'being rural'.</p> <p>There is no one 'true' rural, but many different 'social constructs' or discourses of rurality.</p> <p>Influential from early 1990s, especially in British rural geography</p>	Cloke and Little (1997), Halfacree (1995), Frouws (1998), Bell (1992, 1994), Haartsen et al., (2000); Jones (1995), Philo (1992).	Social constructivist approaches are de-socialized, de-materialized and de-politicized (Cloke, 2006)
	Rural as hybrid	<p>Rural places are hybrid assemblages of diverse human and non-human components and entanglements of social relations that transcend locality. The discursive coding of assemblages as 'rural' reflects their material composition, but there is no one fixed meaning of rurality and the hybrid rural may appear differently from different perspectives.</p> <p>Emerges from early 2000s</p>	Murdoch (2003), Heley and Jones (2012), Rudy (2005), Woods (2007)	Critics argue that relational approaches under-state the significance of macro-structures and social forces such as capital, and are overly empirical (e.g. Brenner et al 2011 on urban assemblages).

3 Contemporary Themes in Studies of Rural-Urban Relations

Across the various theoretical and methodological approaches discussed above, social science research on the intersection and interconnection of rural and urban spaces, and rural and urban societies and economies, has tended to focus around four key themes: classifying and mapping rural and urban space; rural-urban interactions and linkages; the rural-urban interface; and processes of urbanization and ruralisation. All of these are areas of ongoing research. They are examined further in sequence below.

3.1 Classifying and Mapping Rural and Urban Space

The classification and mapping of rural and urban spaces, and thus of the boundaries between rural and urban space, has been repeated focus of geographical research and is closely tied to the functional approach to the conceptualisation of the rural and the urban. Research particularly developed with the recognition that official administrative definitions of ‘urban’ and ‘rural’ districts based on historical charters, population or population density were not sufficient as a basis for analysis, and with the adoption of quantitative techniques in human geography and sociology that permitted more sophisticated modelling. Significantly, this tended to produce classification systems that reflected the idea of the rural-urban continuum, or the rural-urban gradient, with multiple categories ranging from rural to urban, rather than a simple binary.

In some cases, this work was sponsored by government departments and agencies to provide a spatial framework for policy development and implementation. In the United States, for example, a system of Rural-Urban Continuum Codes (RUCC) were developed by the Economic Research Service (ERS) of the United States Department of Agriculture (USDA) in the 1970s (Hines et al. 1975). These categorised ‘metropolitan’ counties by population size, and ‘non-metropolitan’ counties by population in incorporated ‘urban’ municipalities and proximity to metropolitan areas to produce a 9-fold classification (Table 2). The rationale for developing the RUCC was need to capture the increasing integration of rural and urban spaces, with the economic diversification of rural areas away from agriculture and the expanded significance of larger towns and cities as centres for employment and service provision. Cromartie (2016) observes that the RUCC proposal was “one of the few rural demographic publications at the time to explicitly recognize the rethinking of rural in terms of nonmetropolitan space and the growing inadequacy of the Census rural-urban definition for tracking and explaining socioeconomic change” (p 150), and comments that the RUCC “succeeded in capturing the strong association at the time between levels of rurality and key demographic and socioeconomic variables” (ibid.). However, Cromartie also suggests that “socioeconomic conditions and trends today are not as strongly correlated with the RUCC” (2016: 151), and notes that the RUCC has accordingly both been subsequently revised and supplemented by additional classification systems including Urban Influence Codes (which differ from the RUCC primarily in distinguishing between large and small metropolitan areas – see Table 2), and Rural-Urban Commuting Area Codes (RUCA) and Frontier and Remote Codes (FAR), which are discussed further below (see also Isserman, 2005; Schaeffer et al., 2013).

Table 2: Rural-Urban Continuum Codes and Urban Influence Codes in the United States of America

Rural-Urban Continuum Codes (1975)		Urban Influence Codes (1993)	
<i>Metropolitan Counties</i>		<i>Metropolitan Counties</i>	
1	Counties in metropolitan areas of 1 million population or more	1	In large metro area of 1 million or more residents
2	Counties in metropolitan areas of 250,000 to 1 million population	2	In small metro area of less than 1 million residents
3	Counties in metropolitan areas of fewer than 250,000 population	<i>Non-metropolitan Counties</i>	
<i>Non-metropolitan Counties</i>		3	Micropolitan area adjacent to large metro area
4	Urban population of 20,000 or more, adjacent to a metro area	4	Non-core adjacent to large metro area
5	Urban population of 20,000 or more, not adjacent to a metro area	5	Micropolitan area adjacent to small metro area
6	Urban population of 2,500 to 19,999, adjacent to a metro area	6	Non-core adjacent to small metro area and contains a town of at least 2,500 residents
7	Urban population of 2,500 to 19,999, not adjacent to a metro area	7	Non-core adjacent to small metro area and does not contain a town of at least 2,500 residents
8	Completely rural or less than 2,500 urban population, adjacent to a metro area	8	Micropolitan area not adjacent to a metro area
9	Completely rural or less than 2,500 urban population, not adjacent to a metro area	9	Non-core adjacent to a micropolitan area and contains a town of at least 2,500 residents
		10	Non-core adjacent to a micropolitan area and does not contain a town of at least 2,500 residents
		11	Non-core not adjacent to a micropolitan area and contains a town of at least 2,500 residents
		12	Non-core not adjacent to a micropolitan area and does not contain a town of at least 2,500 residents

(Source: Cromartie, 2016)

In a similar exercise, Cloke (1977) constructed an index of rurality for England and Wales, using local government districts as building blocks and modelling data from the 1971 UK Census including not only conventional measures of rurality such as population density and distance to urban centres, but also population change, in-migration and out-migration, age profile, household amenities (percentage of households with hot water, fixed baths and inside WCs), occupational structure (percentage of workforce employed in agriculture) and commuting patterns. These indicators were fed into a model that placed districts in five categories – extreme rural, intermediate rural, intermediate non-rural, extreme non-rural, and urban. Cloke's motivation was not policy-related, but was to develop a framework for case study selection and analysis. As such, it recognized that rural and urban areas could no longer be simply defined by basic land use or population characteristics,

but still made the assumption that rural localities could be differentiated from urban localities. It was also notable – and differed from the RUCC in the United States – in treating the ‘non-rural’ as the residual category, not the non-urban.

The index was revised by Cloke and Edwards (1986) with data from the 1981 UK Census, and as Woods (2005) shows, comparison of the two resulting maps reveals a fundamental limitation in the approach, with the classification of particular spaces determined at least partially by the scale of the analytical units selected: between the two censuses an amalgamation and reorganization of local government units had taken place, which meant that many small towns classified as ‘urban’ in the 1977 index were classified in the 1986 index as part of larger ‘extreme rural’ or ‘intermediate rural’ districts. Other critiques of the model emphasized the selection and weighting of the indicators and the drawing of boundaries between categories, all of which were essentially arbitrary (Cloke 1994, 2006; Woods, 2005, 2011a). As Cloke (1994) later reflected:

Given my view now that this work is an inappropriate way of addressing the idea of what and where is rural, I have often asked the question of why I did this indexing. My empirical work on evaluating key settlement policies was focusing on parts of Devon (which I constructed as a ‘remoter’ rural area) an Warwickshire (a ‘pressured’ rural area) an so although I persuaded myself otherwise, the index was not necessary for selecting case studies. Apart from the ‘prevailing social science culture’ which legitimized and maybe even necessitated this sort of thing, I can only suggest that I was expressing a rather naïve interest in the question of what ‘rural’ was/is in the only way that at the time I had the academic and cultural competence so to do. I think that I knew that by selecting a number of variables to represent, collectively, the rural I was pre-determining the outcome, but the interest was in the emerging geographies of that pre-determination. (Cloke, 1994: 156)

Despite the acknowledged criticisms of Cloke’s index of rurality, it has nonetheless been replicated both for England and Wales (Beynon et al., 2015; Harrington and O’Donoghue, 1998) and internationally. Indexes of rurality have been constructed for countries including Czechia (Perlín et al., 2010), Hungary (Beluszky and Sikos, 1983), India (Bhagat, 2005), Spain (Ocana-Riola and Sanchez-Cantalejo, 2005; Prieto-Lara and Ocana-Riola, 2010), and Turkey (Ogdul, 2010), among others, each involving the modelling of several socio-economic variables to produce a multi-fold typology along a rural-urban continuum.

The scientific significance of modelling and mapping rural and urban spaces was diminished by the move away from functional concepts of rurality with the political-economic critique and the cultural turn. However, as Woods (2009) notes, there has been a revival in efforts to categorize and map rural space, which has had both political and technological drivers. Politically, the impetus for revised and more sophisticated typologies of rural and urban areas has come from the development of new spatial planning and territorial development approaches, and in response to criticisms of the perceived political marginalization of rural districts. In Britain, for instance, new classificatory schema for rural and urban space was commissioned by the government following a wave of protests by rural pressure groups in the late 1990s and early 2000s, and was later employed for the ‘rural proofing’ of policies to assess their impact on rural communities (Bibby and Shepherd, 2004; see also Woods 2008).

At an international level, interest in the comparative analysis of the socio-economic condition of rural regions and evaluation of rural development programmes has prompted the cross-national comparison of rural-urban typologies employed in different states, and the formulation of new transnational typologies (Copus et al., 2008; Dax, 1996; De Beer et al., 2014; Eurostat, 2010). These exercises have highlighted the diversity – and sometimes incompatibility – of rural-urban typologies, with Copus et al (2008) identifying examples of 24 different spatial typologies in use within and across EU states (Table 3). Transnational typologies can thus tend

to be relatively crude and large-scale, especially if they are constructed from data generated for national purposes, with the OECD typology, for example primarily using population density to categorize regions as ‘predominantly rural regions’, ‘predominantly intermediate regions’ and ‘predominantly urban regions’ (Figure 1) (see also Dax, 1996). The OECD has been extensively used for EU policy purposes, however, when applied across the EU the OECD typology is distorted by variations in the size of local administrative units (LAUs) and by variations in the surface area of NUTS 3 areas and in the criteria used to define NUTS 3 regions in different countries (Eurostat, 2017). Accordingly, Eurostat, the Joint Research Centre (JRC), DG Regions and DG Agriculture and Rural Development collectively developed a new typology as a modification of the OECD model. Whilst still employing the same categories as the OECD, the new methodology uses grid cells as its base rather than LAUs, and follows a three-step procedure to classify areas (Eurostat, 2017):

- 1) Clusters of urban grid cells are created with a minimum population density of 300 inhabitants per km² and a minimum population of 5,000. All cells outside these urban clusters are considered to be rural.
- 2) NUTS 3 regions of less than 500 km² are grouped with one or more adjacent regions. All NUTS 3 regions in a grouping are classified in the same way.
- 3) NUTS 3 regions or groupings of NUTS 3 regions are classified based on the share of population in rural grid cells into three categories: Predominantly rural (More than 50% of the total population in rural grid cells); Intermediate (Between 20% and 50% of the total population in rural grid cells); Predominantly urban (Less than 20% of the total population in rural grid cells).

The new methodology has resulted in a number of NUTS 3 regions being re-categorized, as shown in Figures 2 and 3.²

The new EU rural-urban typology also shows the influence of technological innovations in facilitating the development of more sophisticated models, including new GIS technologies, and the availability of georeferenced and remotely sensed data (Muilu and Rusanen, 2004). In particular, this has allowed the distortions created by variations in local government or census tract areas to be overcome, with categorisations of rural and urban spaces detached from these territories or initially calculated for smaller scale units and aggregated upwards. Alongside Eurostat’s use of grid cells in the new EU rural-urban typology, hectare grid squares also formed the basic units for the new rural-urban classification in England in 2004. In this, each grid square was analysed for its ‘settlement form’ based on morphology and household density – categorized as ‘dispersed dwellings, hamlet, village, small town, urban fringe or urban (grid squares in settlements of over 10,000 population) – and for its ‘sparsity’, calculated from the number of households in surrounding hectare squares up to a distance of 30 kilometres (Countryside Agency et al., 2004) (Figure 4). Grid squares were subsequently aggregated to census output areas, local government wards and local government districts, which were classified according to the predominant category at grid square scale as urban, sparse town and fringe, sparse village and dispersed, less sparse town and fringe, or less sparse village and dispersed (Gallent et al., 2008).

² The full classification of EU NUTS 3 regions according to the new typology can be downloaded at: http://ec.europa.eu/eurostat/statistics-explained/images/7/76/Urban_rural_typology_of_NUTS_3_regions_new.xls

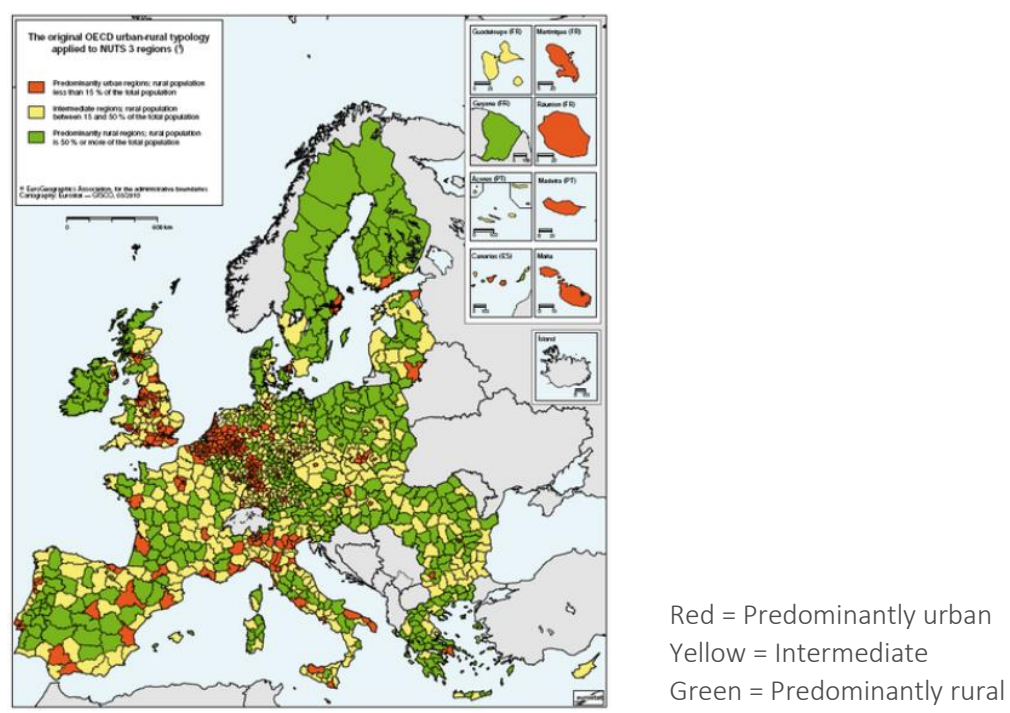
Table 3: Examples of spatial typologies of rural and urban areas used in the European Union

Typology	Date	Country	Geographical Units	Methodology
Spatial structure according to access to central spaces and population density	2005	Germany	Raster	GIS-based accessibility zoning
District classification based on functional areas and population density	2005	Germany	NUTS 3 regions	Disaggregative: settlement size and population density
Territorial classification based on functional areas and population density	2005	Germany	97 planning regions (Raumordnungsregionen)	Unclear
Austrian Spatial Development Concept	2001	Austria	Not known	Unclear
Austrian National Strategic Reference Framework	2007	Austria	Not known	Unclear
Rural and Urban Area Classification	2004	UK (England & Wales)	Census Output Areas and wards (sub-NUTS 5)	Rule-based methodology using population density at various scales
Scottish Executive Urban-Rural Classification	2006	UK (Scotland)	Census Output Areas (sub-NUTS 5)	Rules relating to settlement size and GIS-based accessibility zoning
Typology of the level of urbanization	Not known	Belgium	Municipalities (NUTS 5)	Not specified
City Districts	Not known	Belgium	Not known	Not specified
Typology of rural centric approach	Not known	Belgium	Municipalities (NUTS 5)	Weighted average of 6 socio-economic variables
Degree of urbanization of postcode areas	Not known	Netherlands	Postcode areas	Density of addresses per square km
Finnish rural area typology	2007	Finland	Municipalities (NUTS 5)	Not specified

Typology	Date	Country	Geographical Units	Methodology
National typology of Finnish rural areas	2007	Finland	Municipalities	Principal component analysis
Typology of pays	2006	France	Local development areas (Pays)	Cluster analysis
Urban areas zoning scheme and rural employment areas (ZAUER)	Not known	France	NUTS 5 areas	Principal component analysis
Rural typology of local territories	2003	France	Local territories (bassins de vie)	Cluster analysis
New rural area typology	2005	Spain	NUTS 4 regions	Deductive method for distinguishing types
Rural typology (OECD + Land cover criterion + peripherality)	2007	Belgium, France and Portugal	LAU2	Deductive method for distinguishing types
OECD rural typology	1994	OECD	Territorial level 3 (NUTS 2/3)	Two stage procedure based on population density
Eurostat rural typology	1997, 2004	EU	NUTS 3	Two stage procedure based on population density
Typology based on the degree of urbanization	1997	EU12	Municipalities (NUTS 5)	Grouping of municipalities according to population density thresholds
Typology of accessibility in European regions	2001	Not known	Territorial level 3 (NUTS 2/3)	GIS based accessibility zones
Settlement structure of the EU territory	2001, 2003	EU25	NUTS 2/3	Rule-based procedure – settlement size and population density
Espon 1.1.2 urban-rural typology	2004	EU25	NUT 3	GIS based classification

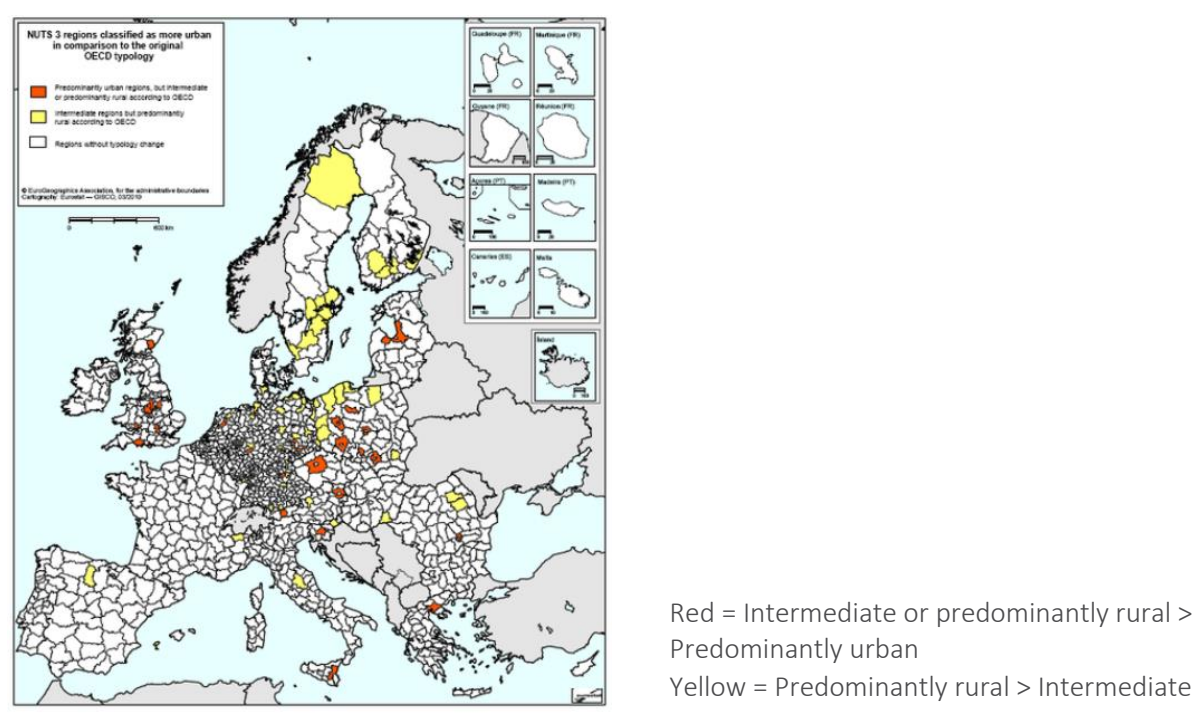
Source: adapted from Copus et al., 2008

Figure 1: EU NUTS 3 regions classified according to OECD typology



(Source: Eurostat 2017)

Figure 2: EU NUTS 3 regions classified as more urban in the new EU typology than in the OECD typology



(Source: Eurostat 2017)

placed more emphasis on the dynamics of rural-urban interconnections. These include the Rural-Urban Commuting Area Codes (RUCA), developed in the 1990s at the census tract scale to produce a 21-fold classification based on the position of the area in commuting flows to towns and cities (Cromartie, 2016; Morrill et al., 1999), and the Frontier and Remote Codes (FAR) developed in 2012 that classify 500 m² grids according to travel time by car to the edge of nearby urban areas of varying size (Table 4) (Cromartie, 2016).

The methodological innovations above have produced more granulated classifications of rural and urban space, however they all continue to assume that rural localities can be differentiated from urban localities on the grounds of functional or physical characteristics, and all may still be critiqued over their selection of variables and the setting of rules and thresholds that produce the typology. Moreover, all result in a singular, fixed categorization of space.

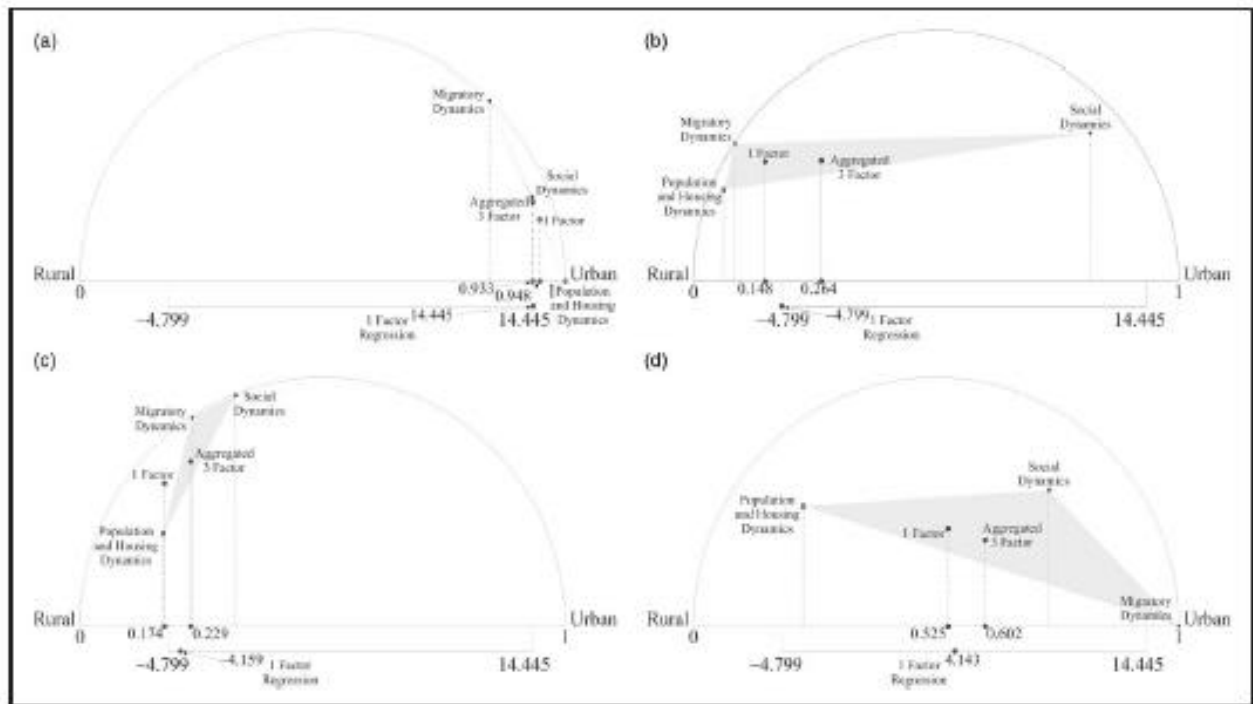
An alternative strand of work that has also emerged from advances in GIS has instead emphasized the uncertainty intrinsic to the modelling of rural-urban classifications to advocate multi-dimensional or probabilistic typologies. Beynon et al. (2015), for example, in revisiting Cloke's (1977) index of rurality in Wales, propose a more nuanced, multi-dimensional model in which the individual rural-urban weighting of each component is made visible in a 'constellation graph' (Figure 5). In the examples shown in Figure 5, the capital city of Cardiff (graph a) is clearly 'urban' on all indicators, whereas the county of Anglesey (graph c) is at the rural end of the scale on all indicators, but the rural-urban position of Powys (graph b) and Ceredigion (graph d) vary significantly depending on the variables used.

Table 4: Frontier and Remote (FAR) Codes used in the United States

FAR Level	Level 1	Level 2	Level 3	Level 4
Population	Rural areas and urban areas up to 50,000	Rural areas and urban areas up to 25,000	Rural areas and urban areas up to 10,000	Rural areas
Travel time to urban area of 50,000 + people	60 minutes +	60 minutes +	60 minutes +	60 minutes +
Travel time to urban area of 25,000 – 49,999 people	X	45 minutes +	45 minutes +	45 minutes +
Travel time to urban area of 10,000 – 24,999 people	X	X	30 minutes +	30 minutes +
Travel time to urban area of 2,500 – 9,999 people	X	X	X	15 minutes +

(Source: Cromartie, 2016)

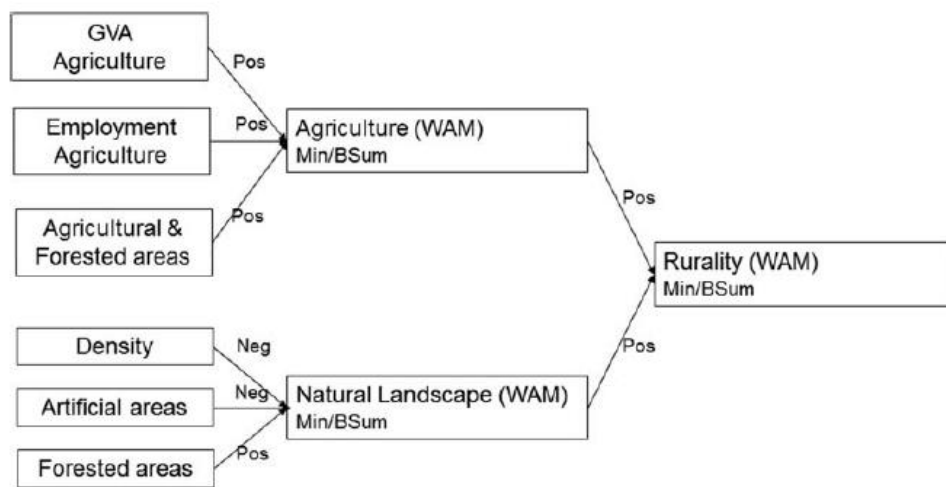
Figure 5: Constellation graphs showing rurality indices based on Population and Housing Dynamics, Migration Dynamics, Social Dynamics, aggregated three-factor index, one-factor index and Cloke regression index, for four local authority areas in Wales: (a) Cardiff, (b) Powys, (c) Anglesey, (d) Ceredigion.



from Beynon et al. (2015).

Pagliacci (2017), meanwhile, draws on the concept of fuzzy logic that links observations to their probability of belonging to a given class to construct a Fuzzy Rural Indicator (FRI) metric for NUTS 3 regions in the EU. As such, Pagliacci employs fuzzy logic to translate data relating to a series of indicators concerning agriculture, population density and land use into values that reflect the probability that the characteristic is found in rural areas. A weighted average method is then applied to produce a FRI score, which is a precise figure between 0 and 1. As a final step, Pagliacci classifies the territories in a four-fold typology according to their FRI score, as urban ($FRI = <0.25$), slightly urban ($FRI = 0.25 - 0.5$), slightly rural ($FRI = 0.5 - 0.75$) or rural ($FRI = >0.75$). Pagliacci argues that the approach provides a “comprehensive and continuous indicator of rurality” (2017: 168) that provides more information on urban-rural continuities than ordinal categories, and which is more accurate in capturing the degree of rurality of heterogeneous regions. However, it may still be critiqued over the selection of variables and for continuing to be constrained by the territorial units of administrative regions, thus giving the impression of significant changes in degree of rurality at regional borders.

Figure 6: Fuzzy decision tree for the construction of a Fuzzy Rurality Indicator, from Pagliacci (2017)



Finally, technological innovations in GIS and remote sensing have also led to experiments with the use of non-numerical data to identify and delimit urban and rural space. Matti-Gallice and Collett (2003), for example, combined aerial photographs and two ‘images’ derived from remotely-sensed Landsat ETM+ data – one showing buildings or physical structures and the other vegetation types – with patterns of ‘mathematical morphology texture’ derived from the presence of contiguous dark and light structures, to model the distribution of ‘urban’ and ‘rural’ features in periurban zones (though Irwin and Bockstael, 2007, note that remotely-sensed satellite data struggles to record low density exurban or periurban settlement due to the lack of correspondence between land cover and land use). The Global Rural-Urban Mapping Project (GRUMP), has similarly constructed a global database to delimit rural and urban areas drawing primarily on satellite recordings of nighttime permanent light (Balk et al., 2003; Balk 2009).³ It controls for temporary variations in light by using the NOAA dataset of stable city-lights, cross-referenced with historic data for urban extents (see also Zhou et al., 2015, for similar but independent analysis of global urban extent using night light data, and Sutton et al. 2010 on using night -time satellite imagery to delimit urban areas in Australia).

The use of satellite data on night light to delimit and quantify urban areas is argued to have particular benefits in parts of the global south where reliable and up-to-date maps or land-use and population data may be difficult to obtain, but it is not unproblematic. Dorélien et al. (2013) compared GRUMP models of urban extents with categorizations of urban and rural areas produced from geocoded survey data for countries in the global south by the Demographic and Health Surveys project.⁴ They found that the GRUMP urban extents data identified the majority of highly electrified cities, though “the measurement is imperfect” (Dorélien et al., 2013: 414), but also that there was only ‘moderate agreement’ in the classification of urban space in the GRUMP and DHS models:

While GRUMP urban extents detect most of the locations defined by urban by DHS, they also identify as urban many locations identified by rural by DHS. Upon closer inspection, these locations tend to be peri-urban and possess many functional urban characteristics. (Dorélien et al., 2013: 414)

³ For more information, data and maps see <http://sedac.ciesin.columbia.edu/data/collection/grump-v1>

⁴ For more information see <http://www.measuredhs.com>

Dorélien et al accordingly propose that satellite night light data and geocoded survey data can be combined to produce a more accurate and nuanced measurement of urban extent, “that is closer to a rural-urban continuum” (ibid: 434). Transposed to a European context, some of the technical and data reliability challenges presented to GRUMP in the global south may be avoided, but there are nonetheless critiques around the interpretation of satellite night light data and the inferences that can be drawn. Pritchard (2017), for instance critiques both the methodology involved in preparing images of night-light (such as distinguishing between ‘natural’ and ‘artificial’ light, and arguments that satellite data does not fully capture all artificial light), and the aesthetics of presentation of the images, which she suggests “dramatizes regional disparities in artificial light at night” (p 320) and implies a moral geography in which “artificial light at night is the positive space of the image, and dark areas are the negative space ... the general *absence* of artificial lighting in some territories is, then, remarkably present” (p 321). Thus, for instance, “Africa literally appears as, in Henry Stanley’s famous words, ‘the Dark Continent’” (ibid.). Moreover, whilst mapping the extent of artificial night light may be a novel way of describing the extent of urban landscapes and infrastructures, it provides little insight into the qualitative use of the spaces it shows, the nature of the interactions within them, or the processes and forces shaping the observed patterns.

3.2 Rural-Urban Interactions and Linkages

The study of interactions between rural and urban areas is deeply rooted in social science research, with early models such as Von Thünen’s concentric rings of land use or Christaller’s Central Place Theory arguably representing attempts to capture rural-urban connections and inter-dependencies. The concepts of the ‘urban field’ and the ‘urban sphere of influence’ were developed from urban studies to describe the areas extending around towns and cities in which there are intensive interactions between the urban centre and rural periphery, for instance in daily commuting, use of services and economic transactions (see for example Berry and Lamb, 1974; Friedmann and Miller, 1965). Urban fields or spheres of influence were modelled and mapped for specific towns and cities through the analysis of quantitative data, often employing techniques such as the distance-decay model and break-point theories to establish firm boundaries. The functionalist tendency of these models led to them being marginalised in human geography and sociology, although they continued to have more influence in planning and economics. Indeed, research interest in rural-urban interactions more generally has fluctuated, influenced by cycles of political interest. For example, Muilu et al. (2017) and Saartenoja (2012) both describe how interest in rural-urban interactions in Finland in the early 2000s faded into the 2010s, with a diminishing number of articles published on the subject.

At the most simple level, studies of rural-urban interactions have documented the regular flows of people, commodities, resources and capital between urban centres and normally adjacent rural areas, revealing a general trend of consolidation as rural communities have become more dependent on urban areas for employment and service provision. The expansion of large-scale retail units, such as supermarkets, hypermarkets and commercial centres, and the rationalisation of public services, have both been associated with spatial concentration, with fewer larger units usually located in urban areas servicing populations over a more extensive mixed rural and urban catchment area. As such, rural residents have been increasingly required to travel to towns and cities to access schools, further education, banking, health services and retail stores for both convenience and comparison goods (Burdick-Will and Logan, 2017; Woods, 2005). Analyses of commuting patterns similarly show increased numbers of rural residents travelling into towns and cities for work, and doing so over longer distances (Champion et al., 2009; Dax, 1996, 1999; Goetz et al., 2010; Nielsen and Hovgesen, 2008). These dynamics are linked in turn to demographic interactions, as captured in the concepts of urbanization and counter-urbanization, both of which are differentiated by age and class. Thus, in relation to age, the observed pattern across much of the global north is of young people moving from rural communities to urban areas for higher education, training or employment; households moving from urban areas into peri-

urban and rural communities later in life, for retirement, or for lifestyle or consumption reasons; and finally, the very elderly sometimes moving from smaller rural communities into small and intermediate towns for better health and care provision (Walford, 2010; Woods, 2005). Socio-economic class has also been demonstrated to shape commuting and migration patterns between rural and urban areas, as household capital and disposable income influences decisions in relation to daily travel costs and property prices (Oliva, 2010; Partridge and Rickman, 2008).

As discussed later in section 5, the documentation and mapping of rural-urban interactions along the lines outlined above has been employed to construct territories for governance and policy delivery, from ‘labour force areas’ and ‘travel-to-work areas’ to city-regions. Yet, social science research has demonstrated that interactions of these kinds occur not just across a two-dimensional plane between a dominant city and its rural hinterland, but within more complex multi-polar landscapes. The modelling of commuting patterns, for instance, has become increasingly sophisticated to encompass more differentiation of groups and sites within commuting fields (Goetz et al., 2010; Lehtonen et al., 2014, 2015; O’Brien, 2015; Oliva, 2010; Partridge et al. 2007, 2010). Renewed attention has also been directed towards small and medium-sized towns that occupy an intermediate position in employment and service provision dynamics between large towns and cities and rural communities (Courtney and Errington, 2000; Courtney et al., 2007; Csurgó and Megyesi, 2016; Powe and Shaw, 2004; Powe et al, 2007; Van Leeuwen, 2010; Woods, 2011b). Courtney et al. (2007) and Powe and Shaw (2004), for example, both examine the economic ‘footprints’ of small or market towns in England, in terms of commercial transactions and service use, revealing highly varying patterns between different town. These variations can to some extent be explained by the size of the town and its proximity to larger urban centres, but as Woods (2011b) shows these relationships are not precise and it is possible, for example, for small towns relatively close to larger towns to retain a fairly high degree of local service provision but also to be largely bypassed by residents from surrounding rural communities who travel into the larger settlement for work and services. Accordingly, Woods (2011b) proposes a six-fold typology of small and market towns and their interactions with neighbouring rural areas, based on research in Wales (Table 5).

Table 5: Typology of Small Towns and Interactions with Rural Hinterlands

Sub-Regional Centres	Perform service functions to fairly extensive rural areas, with relatively high-order public services and facilities such as hospitals with emergency departments, further education colleges and courts, and a wide range of retail opportunities including large supermarkets, comparison good stores and branches of national chains. They have a strong employment base, with significantly more jobs than working residents, and a relatively high level of commuting into the town to work from rural communities and other towns.
Anchor Towns	Provide commercial, social and administrative functions for an identifiable rural district, but rely on sub-regional centres for higher-order functions. They provide middle-order public facilities such as community hospitals, large secondary schools, police stations, local government offices and minor courts, and have an established retail core, but with fewer large stores and chain stores than sub-regional centres. Residents may need to travel to sub-regional centres for comparison shopping, but the town draws customers from the rural hinterland for convenience shopping. They have a significant employment base relative to their population and tend to be the major provider of employment for their rural district, with a high level of commuting into the town for work.

Island Towns	Retain a strong degree of independence, despite often being located close to larger centres, but do not have an extensive functional hinterland. May have sufficient employment opportunities for a large proportion of the town's working population to work in the town, but with relatively few workers commuting into the town. Public services typically include secondary schools, police stations, public libraries and small supermarkets, with retail provision meeting the regular convenience shopping needs of the town population but not attracting significant trade from a wider area.
Doughnut Towns	Towns with strong industrial or retail activity on their periphery, but relatively limited town centre provision. Businesses and facilities in the hinterland provide employment and/or retail services for town residents and for a wider rural population, as well as potentially from neighbouring towns. These may be established industries (e.g. factories, mines, quarries, power stations, ports) or newer developments, including business parks and out-of-town shopping malls or retail sites.
Satellite Towns	Located close to larger centres on which they are dependent for employment and services. The number of jobs in the town will typically be lower than the size of the working population, such that relatively few residents are employed in the town and there is a high net outflow of commuters. Services in the town will typically be limited and low-order (e.g. primary school, post office, convenience stores), with residents travelling to other towns for shopping and leisure and to access public services.
Niche Towns	Have responded to the decline of their traditional service function by capitalizing on specialist attractions or markets, enabling them to sustain a higher than anticipated level of services and employment, with custom from visitors from outside the immediate local area. Examples may include tourist resorts, centres for outdoor recreation, locations of large annual festivals or events, and towns with reputations for specialist retail sectors (e.g. antiques, books).

(Source: based on Woods, 2011b)

A further development has been an increased focus on environmental interactions between rural and urban spaces, including inputs such as food, natural resources, energy and water, and discharges from the city including waste, sewage and pollution (Bradford et al., 2003; Bulderberga, 2014; Corsi et al., 2015; Ilbery and Maye, 2015; Lynch, 2005; Repp et al., 2012). Material flow analysis (MFA) has been employed to systematically assess physical flows to and from urban areas (Bai, 2007; Hammer, 2006; Kennedy et al., 2007; Schulz, 2007), though Castán Broto et al. (2012) notes that its application has faced methodological limitations, especially with regard to data availability. With a similar aim, but different methodology, ecological footprint studies have calculated the amount of land required to provide resources and absorb waste from specified cities (Rees, 1992; Rees and Wackernagel, 1995; Wackernagel, 1998). Such studies have been framed by the concept of 'urban metabolism', which sees cities as akin to ecosystems, and seeks to analyse the flows and exchange processes that produce the urban environment, with the aim of establishing how cities can be made ecologically sustainable (Castán Broto et al., 2012; Decker et al., 2000). As Castán Broto et al., detail, the urban metabolism approach encompasses several dimensions, including ecological, economic and social relations (Table 5); however, its analysis of rural-urban interactions is ultimately partial, as it considers rural environments only in relation to the urban, and as studies tend to be focused on mapping whole system dynamics rather than the interactions between cities and particular rural spaces.

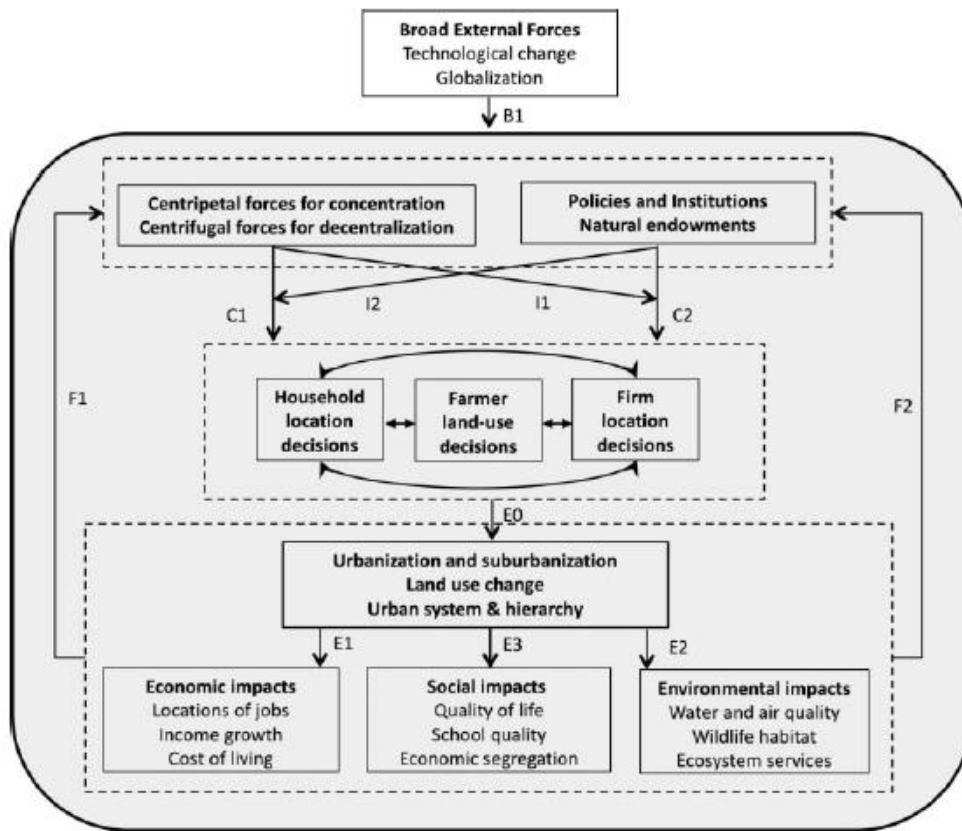
Table 6: Key themes of urban metabolism

Theme	Key question	Emphasis on
The city as an ecosystem	What lessons from the functioning of ecosystems can be applied to design and plan better cities?	Nature-inspired models of development in urban planning and design
Material and energy flows in the city	What methods can account for material and energy flows through the city and can these provide suggestions for their optimization?	Comparative analysis of cities and models of urban planning in relation in their efficiency in allocating materials and energy
The material basis of the economy	What policy measures can break the link between urbanization, economic growth and resource consumption?	The material limits of the economy and macroeconomic models to achieve economic and resource stability
Economic drivers of rural-urban relationships	How do economic relations shape the distribution of flows between urban regions and their surroundings?	Forms of territorial organization in relation to different modes of economic circulation
The reproduction of urban inequality	How do existing urban flows distribute resources across the city and who controls these processes?	Patterns of unequal access to resources and the control of these patterns by urban elites
Resignifying socioecological relationships	What socioecological practices have the potential to reimagine and reconfigure existing socioecological flows?	Alternative visions and models of socioecological flow in cultural production, everyday practices, and policy innovations

(Source: from Castán Broto et al., 2012)

A more helpful framework for integrating analysis of rural-urban interactions across social, economic and environmental domains, is proposed by Wu et al. (2016), who present a model for “understanding key aspects of the spatial economy – including linkages between urban and rural economics and urban agglomeration” (p 465). The framework comprises several components, including centripetal forces that drive urbanization and centrifugal forces that promote decentralization (including falling commuter costs, information infrastructure, property prices, and quality of life factors such as urban congestion, pollution and crime); the economic, social and environmental impacts of rural-urban relocation (including spatial inequalities, shifting local tax bases for public service provision, and disturbances to rural environments from urban development, among others); the feedback effects and dynamics of rural-urban relocation (e.g. “changes in land use patterns associated with rural-urban relocation can affect the relative levels of amenities and quality of life in rural and urban places, which in turn affect rural-urban relocation” (p. 472)); and interaction effects (the connections between economic, environmental and social processes); as well as the influence of broad external forces, such as technological change and globalization (Figure 7). Wu et al. (2016) argue that their framework can provide insights into the interplay between urban and environmental economics and how these have social and community impacts, and as such that it can inform policy-making and governance in areas such as rural-urban collaboration in natural resource management and ecosystem service provision. However, as the illustrations they provide are derived from literature not case studies, the model is still to be empirically tested.

Figure 7: A framework for understanding the drivers and consequences of rural-urban relocation and interdependencies



(from Wu et al., 2016)

The conceptualisation of rural-urban interactions and their drivers has also been critiqued and modified in a move away from conventional functionalist and economistic explanations that tended to emphasize transportation and land costs. In particular, critiques have highlighted the dissonance between the hypothetical outcomes that would be expected if patterns of rural-urban interactions uniformly reflected gradations in transportation and land costs, and actual empirical observations (Burchfield et al., 2006; Castle et al., 2011; Nechyba and Walsh, 2004). Some researchers, writing from a political-economy perspective, explain such anomalies by stressing the mediating role of the local state and the exercise of influence within the local state by class fractions seeking to protect their own capital and property interests (see for example Murdoch and Marsden 1994), whilst others focus on human behaviour.

Castle et al. (2011), for example, propose a ‘place-orientation’ approach to analysis of rural-urban interactions, in which the decisions made by people are understood as influenced by the “attitudes, beliefs, and predispositions that the person holds towards places, including rural and urban places”, which are “shaped and re-shaped by natural and social environments of the place where the individual lives” (Castle et al., 2011: 192). Place orientations may take the form inside-outside (I-O), outside-inside (O-I) or inside-inside (I-I), and “a person with a dominant I-O orientation may be more inclined to make external linkages or migrate to an outside place than a person with a dominant I-I orientation, who tends to stay and interact with people living in the same place” (ibid.). Castle et al. suggest that the place orientation of individuals will affect their inclination to cross rural-urban boundaries in everyday mobilities or social and economic interactions, and may also be scaled up to analyse the interactions of households or businesses:

Our framework ... focuses on how the location of the economic actors across the landscape affects the economy. This opens the door to considering decentralization. To illustrate, consider three types of I-O orientations of a rural firm and a rural household:

A (I-O): this rural firm grows and exports grain to an urban area.

B (I-O): this rural household includes several youths who expect to migrate to an urban place later in life.

C (I-O): this rural firm (or household) is attempting to persuade outside interests to invest in rural real estate they own or control.

In cases A and B, the (I-O) orientation exerts a centralizing influence, but in case C, the (I-O) orientation is decentralizing.

In a similar fashion, the orientations of urban households and firms can exert either centralizing or decentralizing influences. For example, I-O orientations of urban households, together with decreasing transportation costs, exert a decentralizing influence in the form of suburbanization. When transportation costs fall below a certain level, some urban households with a dominant I-O orientation may decide to move to a rural community to live. Thus, the influence of orientations is affected by external forces, such as advancements in transportation technologies and the information superhighway. (Castle et al. 2011: 194)

In connecting economics and behavioural theory, Castle et al.'s approach raises the possibility that insights from cultural or social constructivist research on the outlooks, perceptions and discourses of individuals living in rural communities could be incorporated in a framework that would be quantifiable and reproducible, yet there is also the danger that this act of translation itself could impose an inappropriate rigidity on individuals. Moreover, questions can be asked of Castle et al.'s argument in relation to how 'places' are characterized as having an 'I-O' or 'I-I' place-orientation, and to the relative neglect of structural factors that constrain the options of individuals.

The question of agency is also flagged by Hidle et al. (2009) in research on urban-rural interactions in Norwegian city-regions, in which they suggest that rural-urban interactions may be interpreted in two different ways:

First, rural-urban flow as functional integration may leave the everyday regional actors without agency, but instead treat human actors as moved by the general global integration which produces paths of cultural and economic opportunities. Second, rural-urban flow can be viewed as boundary-crossing practices whereby human agents produce and use boundaries in their pragmatic orientation to fulfil purposeful ends and needs. (Hidle et al., 2009: 415).

The first interpretation follows the stricter neo-Marxist strands of political-economic theory in which the potential for locality factors is limited – such that increased rural-urban integration is an expression of global social and economic forces that might include, for example, the consolidation of markets for urban commercial activity, or the commodification of rural land and experiences for consumption by urban-based consumers – whereas the second interpretation positions rural-urban interactions as being produced by the actors who are engaged in the flows and exchanges. For Hidle et al., this produces not only functional integration – for example, urban shopping centres attracting customers from neighbouring rural areas – but also symbolic integration, as “important forces challenge and to a certain degree also ignore administrative municipality boundaries between the rural and the urban as well as between city and hinterland” (Hidle et al., 2009: 416).

Significantly, ‘boundary-crossing’ as used here by Hidle et al., is not necessarily the same as erasing boundaries. Rather, they suggest that rural-urban interactions can involve a conscious transversal of the city-country binary in search of the ‘other’:

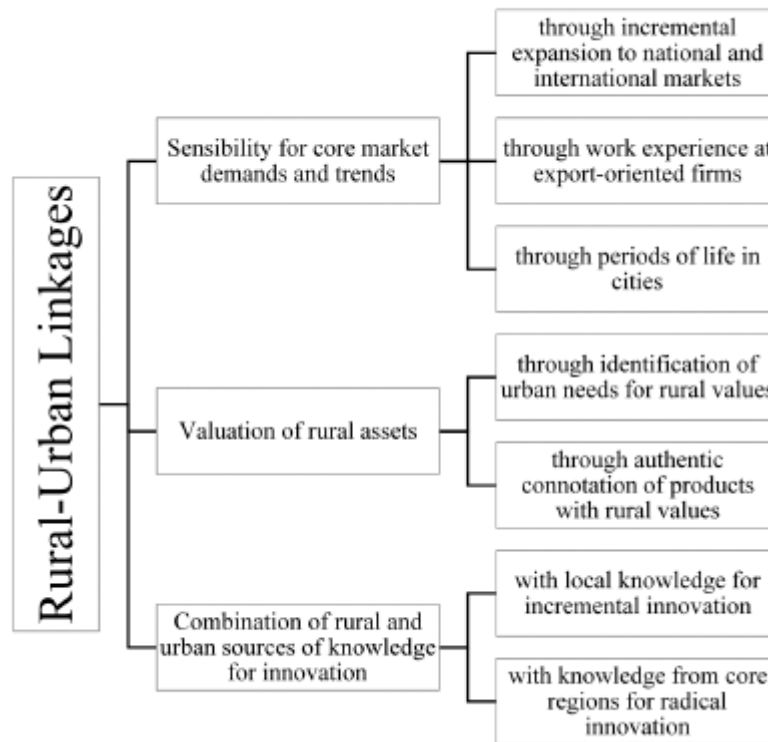
A central dimension is that everyday mobility – especially mobility concerned with pleasure and leisure – is motivated primarily as a result of the search for difference, otherness, and diversity. In a context of everyday mobility, the hinterland and the city are typically constructed as different entities; mobility in the city-regions can best be understood as commuting in difference. Once conclusion that can be drawn is that everyday mobility must be explored with an approach that shifts the attention from the centre of the geographical and social entities towards boundaries and borders – and further towards a perspective of diversity and otherness. (Hidle et al., 2009: 416)

In other words, it is important for such flows and interactions that the urban remains ‘urban’ and the rural remains ‘rural’, at least in the perception of the individuals involved, and do not become homogenized or blurred (see also Lichter and Ziliak, 2017, on ‘boundary-crossing’ and ‘boundary-blurring’). Indeed, different types of rural-urban interaction may be mapped on to various discourses that differently construct the rural in counter-position to the urban, thus defining its perceived function. As Lichter and Brown (2011) outline for the United States, these may include discourses of the rural as a ‘place of consumption’, ‘food basket’, ‘repository of natural resources’ and ‘dumping ground’, which each promote different forms of boundary-crossing, as well as discourses such as the rural as a ‘backwater’ or as a ‘ghetto’, that may in turn encourage rural to urban boundary crossing.

The distinctions between different conceptualisations of rural-urban interactions are significant when analysis is extended from describing and explaining rural-urban interactions to considering their implications for issues of economic development and of governance. Conventional functionalist accounts tended to see cities as the engines of economic growth, and thus to understand the futures of rural economies as dictated by the trajectories of the urban economies that they supplied and supported. In the context of the global south, this was translated into models of development that prioritised urban industrialization, often at the expense of rural agrarian societies (Lipton, 1955; Lynch, 2005; Rostow, 1990), but the same strain of thinking can be found in urban-centric regional development policies in the global north, as discussed further in section 5.

An actor-oriented approach, in contrast, permits rural-urban economic relationships to be seen as two-way and co-constituted, and for agency to be exercised primarily by rural actors. Mayer et al. (2016), for example, argue that “entrepreneurs who create rural-urban linkages may have the potential to decrease spatial disparities through their ability to create economic opportunities in rural areas”, but that “such a transformation ... is only possible through rural change agents like entrepreneurs who are rooted in the rural context, yet also possess strong linkages with urban areas” (p 2). From case study research in Switzerland they describe rural entrepreneurs enhancing their business by linking with urban actors in order to assess market demands, place values on rural assets, and enrol urban-based knowledge and innovation expertise (for example in universities) (Figure 8). These interactions may be with adjacent cities, or more distant urban areas, or may make use of urban knowledge and expertise in one city to gain access to urban markets elsewhere (see also Cabiddu and Pettinao, 2013; Dubois et al., 2012; Grillitsch and Nilsson, 2015) for related examples.

Figure 8: How rural entrepreneurs use rural-urban linkages



(from Mayer et al., 2016)

Indeed, it is noteworthy that the majority of research on rural-urban interactions has been conducted from an urban-centred perspective: either as case studies tracing and mapping the rural linkages and relations of a single town or city, or as more general analyses of rural inputs into urban economies. Studies that start with rural areas and trace relations outwards – commodity sales, commuting flows, temporary labour migration, tourist origins, energy and water supplies, etc. – to what will commonly be multiple urban areas, are much less numerous (see Rudy, 2005, for one exception). Accordingly, the balance of flow in rural-urban interactions can be misrepresented. As Lichter and Ziliak (2017) observe, “it is commonplace to highlight the economic hegemony of urban areas ... we sometimes forget, however, that the economic influences between urban and rural areas are hardly asymmetrical” (p 17) – offering the examples of Walmart, with corporate headquarters in rural Arkansas, and Google, “a product of an urban core whose massive servers are housed and maintained in rural communities” (p 18). More prosaically, the proliferation of out-of-town shopping malls and entertainment hubs, as well as peri-urban industrial estates and enterprise parks; the decentralization of selected hi-tech, creative and service industries facilitated by broadband networks; and the expansion of ‘fly-in, fly-out’ commuting to remote mines and oil fields; all are beginning to challenge assumptions that towns and cities will be the dominant provider of employment and services in a region, and that commuting is primarily rural to urban. For example, analysis has suggested that a large proportion of commuting in the London region is from one part of the city periphery to another (Nadin, 2017), whilst Barski (2017) has documented the relocation of industry to periurban locations in Poland, drawing in commuters from both urban and rural communities.

3.3 The Rural-Urban Interface

A third area of research on rural-urban relations has focused on spaces that found the boundary between rural and urban area, variously referred to as the rural-urban interface, the rural-urban fringe, or as peri-urban spaces (MacGregor-Fors, 2011). Interest in the rural-urban interface emerged from the concept of the rural-urban continuum, with attention directed to communities that in effect formed an extended belt of suburbanization beyond the city edge, and particularly exhibited combinations of urban and rural forms, such as Pahl's (1965) study of Hertfordshire (also Landis 1940). Translated into geography, the 'rural-urban fringe' was defined and studied primarily in relation to land use, characterised as a zone with a shifting mix of land uses, including large-scale urban amenities (such as airports, reservoirs and water treatment works), in-migration and high levels of commuting, and conflict over land use planning and community integration (Bryant et al., 1982; Herington, 1984; Martin, 1953; Pryor, 1968, also Hoggart, 2005a; Noguera and Freshwater, 2016). Researchers differed, however, over the precise location of the fringe, Hoggart (2005a) notes. Some focused specifically on the actual edge of the built-up urban area, with Elson (1987), for example, defining the rural-urban fringe as "the urban shadow, an area of fragmented and 'intruded' farmland near the urban fence" (p 19), whilst others applied the term to an extended area which Furuseth and Lapping (1999) placed 65-80 km from urban concentrations (also referred to as the 'regional city' by Bryant et al. (1982) and as the 'outer city' by Herington (1984)). Pryor (1968), in one of the seminal papers defining the concept, accordingly differentiated between the 'urban-rural fringe' where housing density is above the average for the fringe as a whole, and the 'rural-urban fringe', where it is below average.

Research on the rural-urban fringe in Anglophone geography diminished with the move away from functionalist concepts of urban and rural, but in spite of Errington's (1994) assertion that the rural-urban interface was a 'forgotten' European territory, it remained a more prominent theme in European geography and planning, and in development studies work in the global south. These studies, however, employed a variety of terminology to describe the rural-urban interface, with the term *peri-urbain* used in France, 'rururban' used in Spain, and concepts of 'dis-urbanization' and 'exurbanization' more commonly used in Germany (Hoggart, 2005a). The French-derived 'periurban' has arguably become the most widespread term used in the international literature, though again with a range of definitions and emphases, as summarised by Mbiba (2001) (reproduced by Lynch, 2005) (Table 6) (also Caruso et al., 2007; MacGregor-Fors, 2011; Murgante et al., 2008).

Table 7: Examples of definitions of the peri-urban concept

Spatial/locational	Based on <i>distance</i> from the city centre and relative to the built environment, e.g. peri-urban as those zones at the edge of the built-up areas. Draws on <i>land use values</i> and proportion of non-agricultural activities in the land uses. Considers an area or activity in terms of the legal or administrative boundary of the city, those just outside being peri-urban.
Temporal	Areas recently incorporated into the city or that are contiguous to the city and whose use (usually built development) is recent or below a certain age (maybe 5-10 years).
Functional	Areas that may be outside the city boundary but are functionally integrated or linked to the city on the basis of certain criteria and cut-off points, e.g. supply of fresh produce to the city, daily commuting to the city, labour participation, etc.

Social exclusion	<p>A definition also based on linkages, but looking at areas and social groups within the city. The peri-urban are those areas and social groups located within the city boundary but are socially, economically and functionally excluded from the rest of the city. Criteria could be:</p> <p><i>Infrastructure</i>: such exclusion is usually assessed on the basis of infrastructure provision (water and sanitation being the most common)</p> <p><i>Informal settlements</i> are also used as an indicator of exclusion.</p>
Conflict	<p>A view that is analytical and considers peri-urban areas as places of conflict where two or more different systems clash, as opposed to the convergence and harmonisation of different systems:</p> <p>Rural vs. urban</p> <p>Agriculture vs. built development</p> <p>Modern vs subsistence</p> <p>Formal vs. informal</p>

(Source: Lynch, 2005, adapted from Mbiba, 2001)

As Hoggart (2005a) discusses, research on periurban areas in Europe has focused variously on processes of social and demographic change and mixing (Entrena, 2005; Entrena Duran, 2005; Kraemer, 2005; Pascale, 2009; Zarate, 1984), and on the extension of urban land uses and economic activities (Bauer and Roux, 1976; Berger, 2004; Cadene, 1990; Chevalier, 1993; Heineberg, 2003; Nicot, 1995). Cross-European comparative research was undertaken in the EU Framework Programme 6 project, 'Periurban Land Use Relationships' (PLU-REL) (Tötzer, 2008), and the DG-VI Quality of Life and Management of Living Resources Programme project, 'Urban Pressure on Rural Areas: Mutations and Dynamics of Peri-urban Rural Processes' (NEWRUR) (Bertrand and Kreibich, 2006; Hoggart, 2005b). These comparative analyses highlighted certain common dynamics and challenges (e.g. the tendency for jobs to be increasingly separated from residences; attraction of socially selective in-migrant groups), but also diversity both within and between peri-urban zones (Briquel and Collicard, 2005; Loudiyi, 2010; Noguera and Freshwater, 2016; Serra and Pinho, 2011). From analysis for the NEWRUR project, Briquel and Collicard conclude that "functional integration differences are mainly due to economic relations with cities, with other kinds of relationship deepening or diversifying, or even in some cases mitigating, integration" (2005: 34), and that "variety is a characteristic of peri-urbanization" (ibid.).

A common thread through research on peri-urban areas has been the tendency to see peri-urbanization as a spatial planning problem, involving issues of land use planning, development control, conservation and ecosystem protection, infrastructure provision and social exclusion (Bertrand and Kreibich, 2006; Busck et al., 2008; Gallent et al., 2006; Scott et al., 2013). Briquel and Collicard (2005) argue that the diversity of peri-urban areas means that peri-urban communities are not equally placed to deal with such challenges, and that diversity needs to be recognised in regional planning or development policies. In the same vein, Hoggart (2005c) critiqued the treatment of peri-urban zones within European Spatial Development Policy (ESDP), noting the uneven application of ESDP principles and arguing that "what is happening in villages and small towns in city hinterlands is not providing the kind of outcomes for environmental sustainability, landscape coherence, social inclusion or access to services that the ESDP promotes" (p 167).

At the same time, more positive accounts have positioned peri-urban areas as a zone of opportunity for development new models of integrated and collaborative governance, or of participatory democracy (Hamin and Marcucci, 2008; Noguera and Freshwater, 2016; Puig 2016), or have argued that peri-urban communities need not necessarily be over-shadowed by urban pressures. Aragau and Charvet (2010), for instance, contend that new transport infrastructure enabled economic growth in peri-urban communities around Paris and the development of new service and employment centres in the peri-urban zone, rather than further subjugating

the communities to the dominance of Paris. They describe the patterns of rural-urban interactions around poles within the peri-urban zone as 'proximity territories', suggesting that improved infrastructure has allowed residents to meet needs for proximity and 'human-scale territories' in new peri-urban poles rather than by travelling to more distant urban regional centres. Houston (2005), meanwhile, argues that the significance of agriculture in peri-urban areas has tended to be under-stated and poorly served by policy and planning, suggesting that peri-urban areas in Australia account for at least 25% of the total national gross value of agricultural production.

In parallel to the largely European-focused body of research on peri-urban areas, the concept of ex-urban areas has developed as a focus of study in North America.⁵ The definition of ex-urban areas (or 'exurbia' (Spectorsky, 1955)) differs from that of peri-urban areas in that it generally focuses on land use and settlement form and density rather than on geographical proximity to urban areas. Exurban landscapes are conceptualised as exhibiting relatively dispersed settlement forms, with a lower population density than urban or suburban areas, but a comparatively high density relative to rural areas (Clark et al, 2009; Lamb, 1983; Larsen et al., 2007; Nelson, 1992; Patel, 1980; Taylor, 2011; Theobald, 2005; Woods, 2011a). Individual residential properties often have fairly large areas, and land use in exurbia areas is dominated by residential and recreational purposes. Exurban areas are commonly associated with urban sprawl, as well as with features such as gated communities, 'lifestyle blocks', and 'ranchettes' (Hayden, 2004; Woods, 2011a), and are seen as sites of in-migration, often for lifestyle factors (Cadieux and Hurley, 2011; Carruthers and Vias, 2005; Larsen et al., 2007; Morrill, 1992).

Although some definitions position exurban areas within the commuting fields of larger urban centres (Clark et al., 2009), other studies have identified exurban landscapes in more peripheral locations, distant from metropolitan regions, including resort areas, for example adjacent to national parks. Larsen et al., 2007, go further by defining exurban areas as "scattered, isolated pockets of residential development *some distance* from an urban center in areas possessing high aesthetic values and natural amenities" (p 421, emphasis added). Similarly, ecologist MacGregor-Fors (2011) suggests that exurban areas are distinguished from rural areas by context, "with agricultural fields surrounding 'rural' areas, while 'exurban' areas are embedded in a natural habitat matrix" (p 348) (see also Marzluff et al., 2001). MacGregor-Fors (2011) indicates that rural areas and exurban areas may be found both close to and distant from urban centres, and thus further proposes "the use of the term 'rural satellite' and 'exurban satellite' when a given settlement is located within the same micro-watershed where a major urban area is present, has well defined economic and social links in relation to a major urban area, and its size is smaller than ½ of the adjacent major urban area" (p 348).

Regardless of the precise definition, research on exurban areas has described them as facing the same key challenges as peri-urban areas, including land use change and fragmentation, development control, conservation and ecosystem protection, provision of infrastructure, social exclusion and governance challenges (Carruthers and Vias, 2005; Larsen et al., 2007; Lichter and Brown, 2011; Masuda and Garvin, 2008; Taylor, 2011). They are frequently identified as sites of conflict or contestation between different economic interests or different social groups, reflecting contrasting urban and rural values, or contrasting discourses of rural place (Bērziņš, 2011; Larsen et al., 2007; Masuda and Garvin, 2008; Walker and Fortmann, 2003).

In perhaps a response to the lack of precise spatial definition of exurban areas, a more recent development in North American geography has been a return towards the concept of the 'rural-urban fringe'. Sharp and Clark (2008), for example, recover the term for its utility in emphasizing the position of the fringe/exurban/periurban

⁵ The concept of exurbia has been much less used in Europe, though see Janečkova Molnářova et al. 2017 as one exception.

zone in relation to both the urban and the rural. Sharma-Wallace (2016), in turn, calls for a more explicit analysis of environmental (in)justice in the rural-urban fringe, arguing that the specific dynamics of the fringe within “complex spatial processes of rural and/or urban transformation” (pp 176-177) are not adequately captured by existing environmental justice studies.

A further, final, step is taken by Hiner (2016), who draws on social constructivist and relational perspectives to call for a move beyond a focus on the rural-urban fringe as a location, arguing that “the rural-urban interface encompasses both the physical-material and the socio-political and situates contrasting people and places in an ongoing negotiation of place and environmental meaning” (p 523). Hiner thus proposes to reframe the rural-urban interface as a multidimensional concept, comprising meaning, model and metaphor.⁶ The technical definition of the rural-urban fringe – through statistics or land use mapping – constitutes its meaning: the point where rural and urban space meet. The concept of exurbia, Hiner suggests, represents a model of the rural-urban interface, specifying its parts and interactions, and translating the definition into a useable tool (recognizing that there may also be other models of the rural-urban interface). Finally, Hiner notes that the rural-urban interface is also used as a metaphor, “a vehicle carrying political and environmental ideologies and imaginaries, which can significantly affect the policies and management strategies adopted in rural areas along the urbanizing edge” (p 526). As such:

The outcome of this analysis is that the rural-urban interface cannot be simply described in terms of physical or social characteristics. It must be understood as a complex geography of functions and processes across time and space. How people view the landscape and how that landscape in turn alters them create mutually reinforcing social categories with which people identify. Social difference is constructed through the process of identity formation though counterposition. In other words, it is through the process of defining oneself (individually and socially) in contrast to others that difference is created. As such, political ideologies paired with environmental imaginaries, as enacted in land use planning and management, create defining moments that not only physically shape the landscape but also shape identities and, iteratively, imaginaries and ideologies. (Hiner, 2016: 527-528).

Accordingly, the rural-urban interface is not only a place where rural and urban spaces meet, it is a place in which meanings and understandings of ‘rural’ and ‘urban’ are constructed and contested, as articulated in the ‘defining moments’ of struggles over, say, land use, development or conservation. The rural-urban interface is consequently somewhere the urban and the rural are blurred, with multiple rural and urban identities co-existing in the same space. As Garner (2017) puts it, from research in the rural-urban fringe of Atlanta:

communities located along the rural-urban fringe can provide residents with the symbolic and social resources to construct alternatively urban, suburban, or rural identities. Despite how government authorities and scholarly experts impose official rural-urban boundaries onto space, people living in local communities make sense of ecological and demographic change to construct their own images of urbanity and rurality. Put simply, people’s place-based identities are socially constructed through interactions in their own communities, not inherited from demographers and statisticians. (Garner, 2017: 61)

Therefore, Garner argues that policy-makers should seek to understand how residents of the rural-urban fringe make sense of urbanity and rurality in their everyday lives, thus shifting attention away from land use and settlement forms to questions of identity, culture and lifestyle, as examined in the next section.

⁶ In this, Hiner (2016) is following Pickett and Cadenasso’s (2002) conceptualisation of an ecosystem.

3.4 Urbanization, Re-urbanity and Rurbanization

The final major theme of research on rural-urban relations has concerned the perceived 'urbanization' of the countryside. The term 'urbanization' can have a number of meanings. Firstly, it can refer to the a change in the overall balance of the population, with more people living in towns and cities, and used in contrast to counter-urbanization as a shift in aggregate population back to rural areas. Secondly, urbanization can refer to the expansion of urban land uses and built-up landscapes into rural space. Thirdly, urbanization can also refer to the displacement of 'rural' cultures and ways of life by 'urban' cultures and lifestyles. These three definitions can be linked, and frequently were in early rural sociology and rural geography. Landis (1940), for example, in a sociological study of rural America documented the increasing concentration of the American population in urban areas and connected this to societal and cultural change that permeated into rural communities:

The trend of American life is toward the urban. The small city emulates the metropolis and wants to become one; the small town worships the city and hopes someday to develop in that direction; the rural hinterland reveres that which is urban and borrows heavily from the city. (Landis, 1940: 16)

Cultural urbanization thus in part occurs through the aping and imitation of urban fashions and lifestyles by the rural population, especially as urban culture is disseminated and promoted through global media. As Cloke (2006) observes:

The urbanization and indeed globalization of cultural dissemination through broadcast and print media and especially the Internet, means that most seemingly rural places in the Western world are effectively culturally urbanized. Although distinctive cultural traits are formed in particular globalizations of the local and localizations of the global in rural areas, the all-pervading messages of Hollywood, MTV and Google mean that the idea of rurality as an isolated island of cultural specificity and traditionalism has become anachronistic. (Cloke, 2006: 19).

The 'urbanization' of rural societies has also been associated in much of the global north with the mass migration of former urban residents into rural communities over the last forty years (confusingly also referred to as 'counter-urbanization') (Cloke, 2006; Woods, 2005). This has included individuals who split their time between rural and urban places, as daily commuters to the city, or as periodic visitors to second homes or holiday homes in the country (Jean and Perigord, 2009; also Milbourne and Kitchen, 2014; Rannikko, 2009), as well as in-migrants who live and work in rural areas but remain embedded in urban social networks, and who retain urban mindsets, viewpoints and expectations (see for example, Bell, 1994; Hiner, 2014). Indeed, the emergence of enclaves composed primarily of second homes is a distinctive aspect of urban-rural relations. Medvedev (2017), for instance, has identified several hundred settlements around the fringe of Moscow that are only periodically occupied at weekends and in holiday periods by second home owners who primarily live in the city. Such patterns are a characteristic of regions where the rural economy is not sufficient to support substantial permanent populations and where transport infrastructure is inadequate to support daily commuting. Elsewhere, however, countries with traditions of second home owning can also produce rural localities that are dominated by second homes of urban-residents, with the Stockholm archipelago in Sweden being a prime example (Gallent et al., 2005)

Relatedly, the urbanization of rural societies has additionally been conflated with the decline in significance of agriculture. Jones (1995), for instance, quotes a resident of a village in southern England remarking that "very few of [the village] people work in agriculture so it is not as rural as it was 20 or 30 years ago" (p 42). However,

this elision of rurality and agriculture is not as deeply historically rooted as commonly assumed. It was amplified as a reaction to urban encroachment in the mid twentieth century, including the consolidation of the pastoral myth of the rural idyll in popular culture (Bunce, 2003), but also the efforts of rural geographers and rural sociologists to define the nature of the 'rurality' threatened by urbanization, as discussed earlier in section 2. Linking rurality to agriculture not only ignored the substantial sections of rural economies that had historically not been agricultural, but disallowed the possibility of forms of rurality developing between an agricultural society and an urban society.

The narrative of the urbanization of the countryside has acquired hegemonic status, not only in rural social science literature, but in popular discourse. Yet, arguably, the characterization is highly problematic. If 'rural' and 'urban' are social constructs, it follows that the characterization of any cultural or lifestyle practice, or way of thinking, as being either 'rural' or 'urban' is also socially constructed, rather than a reflection of properties that make it inherently rural or urban. There is thus no necessary reason why, for example, electrification, or pop music, or coffee shops, or anti-hunting opinions, should be regarded as evidence of 'urbanization' in rural communities.

Rather than speaking of the urbanization of rural society, it might arguably be more accurate to speak about the convergence of rural and urban lifestyles and of the hybridization of rural and urban cultures. This is hinted at in Cloke's (2006) discussion of the less-recognized "ruralization of the urban" (p 19) and the two examples that he cites.

The first example concerns trends in architecture and urban design to produce "suburbs, shopping centres, theme parks, executive estates, tourist development and the like which destabilize ideas about city and country by producing city/country hybrids which owe as much to a brining-nature-into-the-city as to a spreading-the-city-into-the-country" (Cloke, 2006: 19). Cloke refers specifically to the example of the West Edmonton Mall in Canada, described by Wilson (1992), as a hybrid construction of a pseudo-rural landscape in an urban setting, but could equally have cited 'garden cities' and 'garden suburbs', pseudo village-style gated communities, and urban parks (Woods, 2011a).

Cloke's second example follows Urbain's (2002) assertion that the consequence of population movement, increased commuting and the decentralization of certain economic functions is that "an important slice of contemporary urbanity can now be found in the village, and that the urban form thereby now encapsulates very strong rural characteristics and influences" (Cloke, 2006: 19). In other words, the transposition of urban people and urban practices into rural space is as much a ruralization of the urban as it is an urbanization of the rural.

As Woods (2011a) describes, further examples of the ruralisation of the city could include the growth of urban agriculture, including the proliferation of city farms, community gardens, community supported agriculture schemes, urban dairies and inner-city farmers' markets (see also Aureli, 2016; Jarosz, 2008; Tisenkopfs et al., 2015); and the presence in cities of community of rural migrant workers who remain involved at a distance in the life of their home rural communities and continue to practice elements of traditional rural culture in urban settings (see Englund, 2002; Velayutham and Wise, 2005).

A further point of hybridization of rural and urban is in the blending of civil society and forms of governmentality. On the one hand, more informal and paternalistic structures of rural community leadership and social organization have been replaced by more formalized governance institutions and ways of engaging with civil society, and the rise of professional technocratic cadres, which Poulle and Gorgeu (1997) describe as the emergence of a 'rural urbanity' (*l'urbanité rurale*). Poulle and Gorgeu's study focuses on the French model of *inter-communalité* as an illustration, but more broadly aspects of the rural urbanity they describe can arguably be

found in the partnerships and governance arrangements that support community-led neo-endogenous rural development. On the other hand, Urbain (2002) contends that urban managers have sought to propagate sets of virtues in urban communities that have more traditionally been associated with rurality, such as self-reliance, solidarity, community spirit and identity, as part of new urbanist and localist ways of governing (Clope, 2006).

Lacour and Puissant (2007) describe the twin processes of the urbanization of the rural and the ruralisation of the urban as a condition of 're-urbanity', which they perceive as the re-articulation of urbanity through rural localities. Rather than seeing urban and rural values and attributes in competition, they understand them as iterative, entwined, and mutually reproducing. Migrants from the city are attracted to rural communities by ideas associated with the rural idyll, including closeness to nature, solidarity and community spirit, but rural communities are made acceptable for urban in-migrants by the presence of urban features such as high-quality public services, cultural activities and cultural diversity. Vibrant rural communities reanimated by in-migration generate forms of cultural expression more commonly identified with urbanity, and produce new commodities and enterprises that depend on urban consumers (craft goods, artisan foods, artists' studios, tourist attractions, festivals, etc.). In turn, drawing on Urbain (2002), Lacour and Puissant observe that values of solidarity, community spirit and identity are applied in urban development in an attempt to match the revitalization of rural areas with the regeneration of urban neighbourhoods.

The hybridization of the rural and the urban is also finally eluded to in the concept of 'rurbanization', which consciously fuses the two terms to describe the inter-mingling of rural and urban forms and the emergence of a new space that is neither fully rural nor fully urban. Although the term 'rurban' is sometimes specifically deployed as a synonym for peri-urban to describe territories at the rural-urban interface (Busck et al., 2008, 2009; Zaleskiene and Grazuleviciute-Vileniske, 2013), the concept has also been employed with broader applicability to capture hybrid forms that defy easy classification as rural or urban (Aureli, 2016; Kolhe and Dhote, 2016).

4 (Re-)Conceptualising Space and the Rural-Urban Dichotomy

4.1 Conceptualising Space and Locality Research

The preceding sections have presented an overview of conceptual approaches to the definition of 'rural' and 'urban' and to rural-urban interactions, and of social science research on various dimensions of rural-urban relations. These have exhibited considerable diversity from attempts to firmly delimit distinctions between the rural and the urban, and thus to precisely map rural and urban space, through to approaches that emphasize the co-mingling and fusion of the urban and the rural, or which treat 'urban' and 'rural' as imagined and hence evasive categories. In this section, we suggest that these different approaches reflect fundamentally different underlying conceptualisations of space. In other words, how we understand the nature of space (and place) shapes how we understand the nature of rural space and urban space, and the interactions between them.

There is an extensive literature in human geography that has explored, theorised and debated the nature of 'space', and its relationships to concepts of 'place' and 'locality' (see for example Beynon and Hudson, 1993; Duncan and Savage, 1989; Harvey, 1969, 1973; Jessop et al., 2008; Jones, 2009, 2010; Jones and Jessop, 2010; Massey, 2005; Merriman et al., 2012; Pierce et al., 2010; Thrift, 1983), but we here draw particularly on the framework outlined by Jones and Woods (2013), and the subsequent referencing of this framework with regard to the rural-urban interface by Brown and Shucksmith (2017).

In a distillation of the broader literature, Jones and Woods (2013:35) outline three commonly understood, but different, notions of space that are applied in locality research:

Absolute space – Space understood as a bounded territory, in which different spaces and places are treated independently, and the local is understood as distinct from the global. Spatial determinism (i.e. the idea that social and economic outcomes are determined by where they are located) has some purchase.

Relative space – Space understood as continual and connected, which may be divided into territories or localities, but where the boundaries of these units are porous and contingent such that different places are interconnected with each other, and the local is connected with the global. Places or spaces cannot be considered as truly independent, but territories or localities can be regarded as connected containers for spatial analysis.

Relational space – Space understood as fluid and dynamic, space does not just exist in 2-dimensional Cartesian form (as represented on the flat plane of a map), but can be twisted and compressed, such that points that are distant on a 2-dimensional plane may be proximate in networks of information exchange or cultural affinity. Places or localities are not bounded, but are nodes or entanglements of social, economic, political and cultural relations in networks of interaction and spaces of flow; and the local and the global are collapsed into each other. Places or spaces cannot be seen as independent but are inherently interconnected.

As Jones and Woods note (following Harvey, 1969, 1973), these are not competing or mutually exclusive definitions of space, but rather can co-exist at the same time as different perspectives emphasizing different attributes of space. However, the three approaches do offer different and distinctive starting points for research and analysis, and indeed for spatial planning and governance.

Starting from the perspective of absolute space leads to governance structures of precisely bounded administrative territories with discrete governance institutions with spatially constrained authority, as well as to research that accepts these bounded territories as the building-blocks for analysis (for example, case studies that are defined by local government territories, or analysis that compares data for different local government units). As Jones and Woods (2013) observe, such territories “are not naturally occurring entities (though some may be contiguous with natural features such as islands), but they do have a stable and precisely delimited materiality that can form the focus for traditional, single-place-based or comparative case study research” (p 35).

In contrast, starting with the notion of relative space emphasizes the interconnections between spaces and places, such that “localities are identified by their cores, not their edges, and are not necessarily consistent with formal administrative geographies” (ibid.). For governance and planning, recognizing the relative dimensions of space may lead to spatial planning practices that are focused on the connections and interactions between places, possibly employing notions such as ‘fuzzy boundaries’ to try to move away from conventional territorialities (Heley, 2013), and to governance arrangements that transcend traditional local government boundaries, such as city-regions. For research, a relative space perspective leads to studies “sensitive to connective forms of enquiry, including, for example, work on city-regions and nested hierarchies” (Jones and Woods, 2013: 35).

The concept of relational space, however, has the most radical implications for research and governance. From this view, localities “are not bounded in any conventional understanding of the term, but have a topography that is described by lines of connectivity and convergence ... [they] transgress inscribed territories and are not necessarily discrete, sharing points of coexistence” (ibid.). Accordingly, research conducted from a relational perspective might start from a particular locality (a city or town or rural district), but is not constrained by it, rather expanding to follow flows and networks. This characteristic presents significant methodological challenges for research design and practice, as discussed further below, and even more significant challenges for the framing and delivery of policy and governance, as discussed in section 5.

4.2 Rural-Urban Interactions from the Perspectives of Absolute, Relative and Relational Space

The framework of absolute space, relative space and relational space outlined by Jones and Woods (2013) for locality research can also be applied more specifically to rural-urban relations, where the different starting points offered by the three perspectives similarly lead to different empirical and analytical foci. Table 7 summarises examples of how the different perspectives on space are reflected in different research questions and concerns within the four broad areas of work on rural-urban relations discussed in section 3. These relationships are explored further in the remainder of this section.

Table 8: Expressions of absolute space, relative space and relational space in research on rural-urban relations
(italics indicate particularly notable applications)

	Absolute space	Relative space	Relational space
Classifying and mapping urban and rural space	<i>Identifying boundaries of urban areas</i> <i>Categorising space as rural or urban by local authority territories</i>	Rural-Urban Continuum and Rural-Urban Gradient Classification schemes based on interactions of rural and urban areas (e.g US RUCA codes)	Co-existence of rural and urban space. Coding of rural and urban identities as socially constructed.
Rural-urban interactions	Transactions and exchanges between bounded urban and rural areas	<i>Identification and analysis of functional areas of urban-rural interactions (e.g. urban field; travel-to-work area; city-regions)</i> <i>Urban metabolism, material flow analysis and urban ecological footprinting.</i>	Flows of networks of people, objects and ideas between and across multiple rural and urban places. Ties and proximities between rural and urban places that are not physically adjacent.
The rural-urban interface	Precise delimitation of the urban edge. Definition of periurban or exurban areas as bounded spaces.	<i>Rural-urban fringes as space of gradual (& contested) transition.</i> <i>Blending of rural and urban forms.</i> <i>Links to both rural and urban areas.</i>	Rural-urban interface as a hybrid space. Coexistence of multiple urban and rural identities.
Urbanization and ruralisation	Urbanization as conversion of land from rural to urban uses; or incorporation of rural area in urban administrative territory.	Degrees of urbanization. Urbanization as migration into rural areas, commuting etc. Ruralisation of urban life.	<i>Hybridization of rural and urban.</i> <i>Urban in the rural, and rural in the urban.</i>

Table 9: Summary of official definitions of rural settlements used in EU member states

Member State	Territorial unit	Criteria	Threshold
Austria	Communes (Gemeinden)	Settlement size	< 2,000 inhabitants
Belgium	Communes	Commuting and sectoral structure of employment	20% employed in agriculture
Bulgaria	Municipalities	Population density, settlement size	< 150 inhabitants per km ² < 30,000 inhabitants in largest town
Cyprus	Not specified	Geographical context	All areas outside Nicosia and district towns covered by Local Town Plans as defined by the Department of Town Planning
Czech Republic	Municipalities	Number of permanent residents	< 2,000 inhabitants
Germany	Regions	Population density and settlement size	Population density >150 persons per km ² or >100 if region includes an urban centre of 100,000 inhabitants
Denmark	Address	Settlement size	< 200 inhabitants
Spain	NUTS 5 regions	Population size	< 2,000 inhabitants
Estonia	Municipalities	Population size	< 2,500 inhabitants
Finland	Municipalities	Various	n.a.
France	Municipalities	Population size	Settlements with less than < 2,000 inhabitants
Greece	Municipalities and communes	Population size	< 2,000 inhabitants
Hungary	Settlement (NUTS 4)	Population size and population density	Pop size < 10,000 inhabitants Density < 120 persons per km ²
Ireland	District Electoral Division (DED)	Population size	Outside clusters of > 1,500 inhabitants
Italy	Communes	Population density	< 100 persons per km ²
Lithuania	Postcode areas	Population size; characteristics of towns	Small towns = <3,000 inhabitants, villages = other areas having no characteristic features of towns
Luxembourg	Communes	Population size	< 2,000 inhabitants in administrative centre

Member State	Territorial unit	Criteria	Threshold
Latvia	Parishes and rural areas	Total land area excluding urban areas	n/a
Malta	Not specified	Settlement size	Areas outside towns >1,500 inhabitants and outside district centres
Netherlands	Sub-districts within municipalities (buurten)	Density of addresses	< 500 addresses per km ²
Poland	(Parts of) municipalities	Population density	< 150 inhabitants per km ²
Portugal	Communes	Population density	< 100 inhabitants per km ²
Romania	Villages / municipalities	Settlement size, agricultural employment	Not specified
Sweden	Geographical coordinates or address	Settlement size	Two definitions: (1) < 1,000 inhabitants; (2) < 200 inhabitants
Slovakia	Municipalities	Population size, population density	Size: < 5,000 permanent inhabitants; density < 100 inhabitants per km ²
UK – England and Wales	Settlements	Settlement size	Outside Census Urban Areas (> 10,000 inhabitants)
UK – Scotland	Settlements	Settlement size	< 3,000 inhabitants

(Adapted from Copus et al., 2008)

The notion of absolute space underpins efforts in the descriptive and socio-cultural traditions to identify the distinctive essence of ‘rural’ and ‘urban’ environments and societies, and to precisely categorise and delimit rural and urban spaces, especially where the absolute spaces of local government areas are used as the units for analysis and classification (Table 8). Moreover, the logic of absolute space is reflected in approaches that have held that features of rural and urban economies and societies can be explained by their rural or urban locality, including attempts to distinguish ‘rural localities’ as functionally different to ‘urban localities’. As discussed in section 2, such approaches have been extensively critiqued, however the influence of absolute space persists in case study selection and methodology, with many otherwise critical studies of rural-urban relations continuing to uncritically employ the bounded absolute spaces of local government districts as case study areas or as units for comparative analysis. Küle (2008), for example, describes that in Latvia, research on rural and urban areas have generally not questioned the relevance of administrative territories or their traditional classification as rural or urban:

Cities are considered in their administrative, not their functional boundaries (Krišjāne, 2001; Āboliņa and Zilāns, 2002; Donis, 2003; Hazans, 2004; Rozīte and Priedāja-Klepere, 2004). In the classification of urban and rural areas, indicators are compared with respect to such issues as population demography and mobility at the national and the district level (Eglīte, 2000; Bauls and Krišjāne, 2000), indicators describing the development of towns and cities at the local government level (Šķiņķis and Stankeviča, 1999; Krišjāne, 2001), or the statistical territorial unit from the perspective of the formal boundaries of the city of Riga (Francis, 2000). Without evaluating the concept of rurality or the formal boundaries of rural areas,

Latvian researchers see changes in the spatial subcategories of rural territories over a longer period of time – population numbers, changes in forested and agricultural territories in various places, etc. (Penēze et al., 2004; Nikodemus et al., 2005; Bell et al., 2007). (Kūle, 2008: 14).

Approaches starting from the perspective of relative space, in contrast, see rural and urban as relative not absolute categories. The concepts of the Rural-Urban Continuum and the Rural-Urban Gradient as such embody notions of relative space, as do studies of exurban and periurban areas that see these as transition zones between the city and the countryside. The notion of space as relative also underpins research on rural-urban interconnections and interdependencies, as this work recognizes that the rural and urban are not independent and that boundaries between the two are porous. This includes work on population movement and commuting, use of commercial and public services, and the ecological networks of food provisioning, water supply, waste disposal etc.. As such, the geographical settings for research on rural-urban interactions from a relative space perspective should not properly be a local government area, but a functional area defined by the territorialization of the observed interaction, such as a commuting field or a city-region, or a watershed or river catchment. Indeed, research to identify functional regions around cities for the purposes of research and governance is itself an articulation of the notion of relative space (see Box 1). At the same time, a relative space perspective recognizes that the boundaries of functional regions are not discrete, that different functional regions with different boundaries may exist for the same city for different processes, and that the functional regions of one city may overlap with those of another. Nonetheless, functional regions tend to be imagined on a two-dimensional plane, emanating out from a central city to the adjacent hinterland.

This is where the concept of relational space departs from relative space, by envisaging spatial relations in multiple dimensions. As such, it recognizes that rural-urban interactions do not only occur between a city and its adjacent hinterland, but may connect geographically distant places in different parts of the world. For example, satellite communications and air travel may mean that a remote rural periphery is more intensely connected with a distant metropolis than with a supposed regional city to which road or rail connections are poor; patterns of migration may connect rural communities in Asia or Africa to European cities; and urban economies may be dependent on natural resources imported from distant rural mines or oil fields, more than on the resources of the immediate hinterland. These relations transgress not only the boundaries of local government territories, but also of nation states.

Yet, relational space can be an elusive concept to grasp because it is difficult to represent graphically or to operationalise in practical research. In spite of these challenges – or may be because of them – relational space has been extensively debated and discussed in 21st century geography. Relational perspectives have been applied to the city (for example Amin and Thrift, 2002, 2016; Massey, 2007, 2011; McCann and Ward, 2010; Pierce et al., 2010) and to rural areas (Heley and Jones, 2013; Murdoch, 2003; Rudy, 2005; Woods, 2007), but rarely specifically to rural-urban interactions.

Analysis of Development Potential and Modelling of Functional Regions in Slovenia

An example of research that applies the concept of relative space to urban-rural interactions is a study commissioned as part of the 'Competitiveness of Rural Slovenia, 2006-2013' programme to identify functional regions in Slovenia as a basis for regional development policy. The regions were defined not on the basis of historical administrative units, natural features or geographical characteristics, but on the basis of services and socio-economic needs to form coherent development areas. Several models of functional regions were constructed and tested.

Reference: Pogačnik et al., 2010

Weblink: www.dlib.si/?URN=URN:NBN:SI:DOC-9SOJIVV3

The introduction of relational perspectives into rural studies is particularly associated with the work of Jonathan Murdoch, who through a series of interventions drew on aspects of post-structuralist theory, notably actor-network theory, to develop a conceptualisation of the countryside as a hybrid, networked, relational space (Murdoch, 1997, 2000, 2003, 2006). Murdoch's argument was initially concerned with what might be described as the internal relationality of the countryside – the hybrid co-constitution of the rural as a heterogeneous assemblage comprised by relations between human and non-human entities (Murdoch, 2003). These relations may combine different sets of elements in rural settings than found in the city, such that “in many respects... the countryside might be seen as a distinctive, yet hybrid space” (Murdoch, 2003: 272), but this is not to say that there is any one essential view of the rural, rather there are many rurals:

The countryside is hybrid. To say this is to emphasize that it is defined by networks in which heterogeneous entities are aligned in a variety of ways. It is also to propose that these networks give rise to slightly different countrysides: there is no single vantage point from which the whole panoply of rural or countryside relations can be seen. (Murdoch, 2003: 274)

Moreover, “because the countryside contains so many different entities, mixed together in so many varied combinations, it will have a spatial form that is heterogeneous and complex” (ibid: 272). Within this perspective, Murdoch observes, space is complex, and “it is complex both because networks interact with given or pre-existing spaces and because these networks construct their own spatial coordinates” (ibid). To attempt to capture this complexity, Murdoch deploys three spatial metaphors from actor-network theorists Mol and Law (1994) that resonate with the typology presented by Jones and Woods (2013). The first metaphor, space as region, “refers to spaces of relatively fixed coordinates” (Murdoch, 2003: 273) with the bounding and categorising of rural spaces, and broadly corresponds with the notion of absolute space. The second and third metaphors, network space and fluid space, may be associated with different aspects of relational space. Network space refers to “relations that link together entities in ways that mark out their own space-time coordinates” (ibid.), in other words, they are not constrained by two-dimensional Cartesian space. Objects exist not only in relation to their immediate environment, but also as part of networks in which they may be proximate to other elements from which they are geographically distant:

The consolidation of heterogeneous relations within the livestock sector provokes a greater intensity of production, the arrival of large-scale feeding lots in rural areas and the gradual diminution of animals in the fields. A spatial arrangement accompanies the construction of the network and it acts to ‘fold’ the rural into a set of interconnected and proximate elements, thereby detaching these elements from previously consolidated sets of relations (e.g. fields as part of landscapes and grazing animals as part of fields). (Murdoch, 2003: 273)

Fluid space is also aligned with network relations, but conceives of the connections between entities as loose and unstable, such that multiple identities are possible. This means that elements in rural space may simultaneously be part of the spatial configurations of multiple networks, may be detached and moved between networks, and may be constructed differently in different networks – creating the potential for conflict and contestation. Taken together, these perspectives present rural space as a place where multiple processes co-exist, as ‘meeting places’, “where diverse socio-spatial relations become juxtaposed with one another” and in which “more fluid sets of relations will unfold in ways that are not easily prescribed by any one network configuration” (Murdoch, 2003: 274).

In a similar but more grounded analysis, Rudy (2005) draws on the metaphors of ‘region’, ‘watershed’ and ‘cyborg’ as ways of understanding the agricultural region of Imperial Valley in southern California. Having critiqued the models of region and watershed for reproducing the separation of nature and society, Rudy employs the metaphor of a ‘cyborg’ (borrowed from Haraway, 1991) to emphasize the heterogeneous constitution

of the area by inter-relations of diverse elements, including Colorado River water, migratory wildfowl, the intentionally-seeded food chain of the Salton Sea, the San Andreas Fault, Mexican field labour, university extension services, global markets and supply chains, international biotechnology, chemical and seed conglomerates, and state and federal regulation of water rights, regulations and markets. The relations between these elements link the natural and the social, human and non-human, and also the local and global, and rural and urban.

Murdoch and Rudy therefore apply relational perspectives to rural space, presenting rural places as entanglements of relations that are unbounded and thus implicitly transgress the rural and the urban, however, neither explicitly addresses rural-urban interactions. Woods (2011) gives this potential application more emphasis, suggesting that the relational approach, “permits us to recognize the diverse networks and flows that criss-cross rural and urban space and the hybrid forms that result as being part of the very constitution of both the rural and the urban” (p 43), but is restricted to illustrating the point with reference to studies that describe the blurring and intersection of the rural and urban without necessarily being conducted from a relational standpoint. Heley and Jones (2012), similarly discuss relational approaches as a theoretical means to examine the spatial entanglement of rural and urban identities, but primarily focus on the collapsing of the local and the global in relational space, and the application of counter-topography as a methodology to explore affinities and interconnections within the global countryside (see also Woods, 2007).

As such, despite recent excitements around relational theory in both rural and urban studies, the analysis of rural-urban interactions through the prism of relational space has arguably been underdeveloped. In considerable part this reflects the difficulties present in operationalising the concept for empirical research, and in particular the problem of the absence of spatial boundaries. That space is not bounded is a fundamental principle of the concept of relational space, yet without boundaries it becomes difficult to define and describe case study regions, to collate and analyse spatial data, to know when to stop in following connections, and to make distinctions between those processes and outcomes that form part of one place, and those form part of another. Relational approaches to space have also been critiqued for neglecting the continuing significance of territorial identity to people (though the concept of ‘relational place-making’ may go some way towards addressing this (Pierce et al., 2010)).

Brown and Shucksmith (2017), for example, acknowledge the ‘relational turn’ in social science and note that it raises many questions for both rural and urban studies, however they argue that “while the extent and nature of mobility have increased in contemporary society and new forms of mobility are restructuring people’s social and economic lives, people still solve the challenges of everyday life in places that are meaningful for them” (p 288, also Shucksmith et al., 2012). Accordingly, they continue:

We reject a simple territorial versus relational dichotomy, and see the rural-urban interface as a synthesis of place-based relationships and broader relational processes, both of which must be addressed. In other words, local governance might draw upon and employ a range of relational networks that stretch beyond the local jurisdiction, but these are still simultaneously lodged within their territories (Brown and Shucksmith, 2017: 288)

As Brown and Shucksmith note, the problem of bridging the relational and the territorial is also addressed by Jones and Woods (2013), who follow on from their articulation of the three conceptualisations of absolute space, relative space and relational space, to advocate a ‘new localities’ approach that “does not seek to adjudicate between these different representations of locality” (p 35) but which attempts to develop a framework for locality research that can accommodate the different perspectives.

Jones and Woods follow the relational approach in describing localities as multifaceted and multidimensional, as “‘shape-shifters’ whose form changes with the angle from which they are observed” (p 35), and proposing that the identification of case studies for research “can be freed from the constraints of the rigid territoriality of administrative geography” (ibid.). Yet, they also recognize that for effective governance to take place, dynamic spatial entanglements of relations need to be stabilized into meaningful territories:

The new localities approach accordingly focuses attention on processes of ‘locality-making’, or the ways in which semi-stabilized and popularly recognized representations of locality are brought back into being through the moulding, manipulation and sedimentation of absolute, relative and relational space within ongoing social, economic and political struggles ... Indeed, it is in these ‘acts of locality-making’ that localities are transformed from mere points of location (a description of where research was conducted) to socio-economic-political assemblages that provide an analytical framework for research. (Jones and Woods, 2013: 36).

Jones and Woods suggest that to be meaningful localities need to have both ‘material coherence’ and ‘imagined coherence’. Material coherence refers to the institutional structures that hold a locality together and provide vehicles for collective action, which may be local governments, economic development zones, travel-to-work areas, the catchments for schools or hospitals, or the reach of a supermarket or shopping centre. Imagined coherence indicates that residents of the locality have a sense of identity with the place and each other, with shared geographical points, such that the locality has meaning as a space for collective action. Territories can have material coherence, but not imagined coherence (such as artificially amalgamated local government areas), or imagined coherence but not material coherence (possibly because they are split between different administrative regions, or because they are subsumed into larger urban fields); but strongly functioning localities require both.

Applied within the context of the rural-urban interface, it is possible to envisage several configurations of material and imagined coherence, including, though not limited to:

- ▶ Towns and cities with material and imagined coherence that corresponds to urban municipal boundaries, and which thus are delineated from surrounding rural areas;
- ▶ Localities based on cities with material and imagined coherence that extends over a rural hinterland;
- ▶ Urban fields combining urban and rural areas with a strong material coherence – based for example on commuting and service provision – but limited material coherence as rural residents do not identify with the city;
- ▶ Extended city areas with imagined coherence and some material coherence based on social economic interactions, but whose material coherence is also limited by the area being divided between different local government territories;
- ▶ Rural communities and small towns that have strong imagined coherence, but limited material coherence as they are integrated into the social and economic fields of an adjacent large town or city;
- ▶ Rural districts that have relatively strong material and imagined coherence without the presence of a sizeable town or city;
- ▶ Extensive rural areas without a sizeable town or city, but in which material and imagined coherence is fragmented;

- ▶ Rural areas that share degrees of material and/or imagined coherence with more than one urban centre; or which have material coherence with one town, but imagined coherence with another;
- ▶ Regions or provinces that contain both cities and rural areas and have material and imagined coherence at a scale of governance that transcends the rural and urban;
- ▶ Regions or provinces containing both cities and rural areas that have a strong imagined coherence, but limited material coherence.

The potential to combine relational and territorial perspectives in analysis of the rural-urban interface is also explored by Brown and Shucksmith (2017), whose conceptualisation parallels that of Jones and Woods (2013), but who also draw on further political-economic concepts included 'spaces of engagement' and 'networked development'. They see localities in the rural-urban interface as relationally connected with various social, economic and political sites and processes, but as also taking a territorial form. As such, they argue, "local governance might draw upon and employ a range of relational networks that stretch beyond the local jurisdiction, but these are still simultaneously lodged within their territories (Brown and Shucksmith, 2017: 288). In this they evoke Cox's (1998) model of 'spaces of engagement' through which local actors interact with regional and national institutions, and 'spaces of dependence' as "those more-or-less localized social relations upon which we depend for the realization of essential interests and for which there are no substitutes elsewhere" that "define place-specific conditions for our material well being and our sense of signification" (Cox, 1998: 2).

Brown and Shucksmith present spaces of engagement as relational and spaces of dependence as territorial, and further suggest that spaces of dependence are imbued with democratic legitimacy where they are concrete communities that "have histories, legacies and identities" (Brown and Shucksmith, 2017: 297), which they further align with Jones and Woods's material and imagined coherence. Accordingly, what emerges is a framework in which both the relational and territorial dimensions of space are recognized, in which notions of material and imagined coherence can be deployed to establish the territorialized localities in which fluid and dynamic relations are stabilized to facilitate governance and political engagement, and concepts of relationality, networks and flows can be utilised to understand how these localities are enrolled in wider structures and processes and exist in relational space.

Moreover, Brown and Shucksmith in particular emphasize the challenges and consequences that follow for the governance of the rural-urban interface from this conceptualisation, noting that:

Many institutions such as council are still place-based and places still have meaning for those who live there. The challenge for governance in the rural-urban interface is to simultaneously acknowledge the legitimacy of place-based interests while also engaging with transcendent inter-place relationships through constructing spaces of engagement. (Brown and Shucksmith, 2017: 288).

The implications of this statement are explored in the next section.

5 Translating Concepts into Policy and Governance

5.1 Concepts and practice

The sections above have focused primarily on social science academic engagement with rural-urban relations and the conceptual and methodological approaches that have been employed in research. There are, however, strong iterative connections between social science research on rural-urban relations and the practical organization and delivery of governance and policy. Academic research has often been pursued with the objective of informing policy, including as studies commissioned by governance bodies. Policy-makers have in turn drawn on academic studies and concepts in formulating policies and plan, structuring governance arrangements and delivering programmes, either explicitly or implicitly. Concepts such as the 'rural-urban fringe' 'rural-urban continuum', 'periurban' and 'city-region' have to some degree entered policy language and discourse, whilst other concepts are less visible but nonetheless may be implicitly employed. For example, policy-makers and practitioners do not engage directly with theories of space (except perhaps for some spatial planners), but the notions of absolute space, relative space and relational space as different ways of viewing spatial relations are nonetheless present both in institutional structures and in policy. In particular, they can be observed across the three domains of governance arrangements, spatial planning and territorial development in which governance and policy is commonly required to engage with the problem of rural-urban relations.

This section discusses how governance and policy arrangements with regard to administrative units, spatial planning and territorial development reflect the actualisation of concepts of absolute space, relative space and relational space, and how they have drawn on other concepts from social science analysis of rural-urban relations.

5.2 Absolute space: Local government areas

Administrative geographies tend to follow the framework of absolute space as local government need to have a precisely delineated territory in order to establish the limits of their authority and responsibility and to define the electorate to which they are responsible. In most countries, this has involved a separation of rural and urban areas, as urban authorities tend to have been established much earlier than rural authorities, often as historic cities or boroughs with mediaeval charters, and may have greater powers or different structures to rural authorities. As the boundaries of urban authorities in many cases reflect the historic edges of the town or city, and usually may only be changed through legislation, they commonly are over-spilled by urban residential and industrial expansion. The presence of suburban estates, industrial areas, infrastructure such as airports, and satellite communities in the rural-urban fringe, beyond the formal boundaries of the city or town council presents one of the major challenges for governance at the rural-urban interface. These can involve issues for planning, economic development and service planning and provision, with fiscal pressures arising when public facilities in an urban centre are serving populations from adjacent rural communities that make no direct contribution through taxation. At the same time, the capacity of rural authorities may be weakened by the loss of independent services, businesses and working daytime populations to concentration in nearby towns and cities (Douglas, 2016).

One major instrument that has been used to address these challenges has been the periodic restructuring or reorganization of local government, in effect a redrawing of absolute space with new boundaries and local authority territories. Douglas (2016), for instance, cites examples of local government amalgamations that

have reduced the number of municipalities or local government areas in Denmark, Finland, Ireland, Norway, Poland and Sweden. These reforms have commonly involved the amalgamation of smaller rural municipalities or districts, the incorporation of suburban and periurban municipalities in expanded urban authorities, or the creation of new larger local government districts that encompass both urban and rural areas. In Ireland, for example, local government reforms in 2012 abolished town councils (which were tightly focused on the historic built-up areas of small and medium sized towns) and replaced them with new sub-county, town-centred municipal districts (Douglas, 2016). In Finland, a voluntary process of amalgamation gradually reduced the number of municipalities from 560 in 1945 to 432 in 2005, but were followed by the mandatory PARAS reform process (2007-2010) that further cut the number of municipalities to 336, frequently by combining smaller rural municipalities with larger cities. As Zimmerbauer and Paasi (2013) record, the proposed mergers were often contested, thus highlighting the strength of residents' attachments to place and the challenges that can confront newly created local authority areas in establishing imagined coherence.

The expansion of urban municipal areas by annexing adjacent rural areas is conceptualised by Rusk (1993) with the notion of 'elastic cities'. As Meligrana (2007) describes, elastic cities expand in response to urban growth to capture new suburban and periurban developments, but also to strengthen their own capacity to act by increasing their population and tax base and by acquiring space for further development. Accordingly, Rusk correlates the elasticity of city's boundary with economic growth and the effectiveness of regional planning, arguing that "annexation is important in consolidating the rural-urban fringe area because it creates elastic cities which can expand to include the entire geographic sphere of influence for a city-region" (Meligrana, 2007: 700). Annexation hence produces 'cities without suburbs', "thereby solving problems of growth management, revenue, and political inequalities within a city-region" (ibid.). However, Meligrana observes that Rusk does not support his hypothesis with empirical testing, and Meligrana's (2007) own application of the concept to the analysis of cities in British Columbia only partially supports Rusk's positive correlation between the elasticity of a city's boundary and growth or development.

Moreover, both Rusk's functionalist model and Meligrana's testing of the hypothesis are devoid of any consideration of the politics of the process and the scope for resistance, as demonstrated by Zimmerbauer and Paasi (2013) in their work on Finland. Indeed, Douglas (2016) observes that restructuring involves competition between the interests of the state and of local communities (or of urban and rural communities), and that "all attempts at restructuring have to be situated in this, at times volatile, intergovernmental dynamic" (Douglas, 2016: 603). Thus, centripetal pressures from the central state or from cities towards amalgamation and annexation may be countered as "rural local governments strive for more local autonomy in order to effectively represent their constituencies, acquire and sustain a viable financial resources base, influence the nature and extent of services provided, and collaborate with other local governments, and other levels of government, as required" (ibid.).

Douglas also notes that centrally-enforced restructuring of local government is more difficult in states where municipalities enjoy greater constitutional protection, mentioning specifically Germany, though France, Italy and Switzerland could also be cited as notable examples. In these contexts, the tendency has been to focus on the relative rather than absolute spaces of local government, by promoting forms of inter-municipal or inter-communal collaboration and partnerships. The French system of intercommunalité is among the most advanced, encompassing a range of different models for cooperation with varying degrees of integration, including the communauté de communes combining small towns with adjacent rural communes, as well as looser syndicats of rural communes for the joint provision of public services such as refuse collection (Pouille and Gorgeu, 1997). In Germany, inter-communal cooperation has tended to focus more on specific functions and services, yet Kopf et al (2014) report that most municipalities (rural and urban) are actively engaged in inter-

communal cooperation, particularly within the spheres of tourism and marketing, water and waste management, IT, business promotion and spatial planning (Frick and Hokkeler, 2008). De Vries and Sobis (2013) identify forms of inter-communal cooperation in a number of other European countries, including Belgium, the Czech Republic, Finland, Hungary and the Netherlands. Some of these will be examined further in the more specific discussions of territorial development and spatial planning below.

5.3 Absolute and relative space: Territorial development

Programmes for economic development can display elements of both the absolute space and relative space dimensions in their treatment of rural-urban relations. On the one hand, economic development strategies often articulate a relative view of space in articulating visions that recognize the inter-connection of rural and urban spaces and which place an emphasis on transport and communications infrastructure and on extra-regional networks. On the other hand, they are often delivered through territorially-bounded programmes that are restricted to a particular defined region as an absolute space.

The problem of the territorial boundedness of economic development may be particularly acute where it is enacted primarily through regional or local governments who are restricted in their scope by boundaries that may not reflect the functional connections between rural and urban areas. However, similar issues can also be observed for programmes administered through separate agencies or partnerships, if the eligible area is defined by local government territories, as is the case for EU Structural Funds. Here, situations may arise where function regions of cities and hinterland are split by boundaries that are also the limits of eligibility for funding, such that for example rural districts may technically be eligible for regional development funding, but not the city that is their major provider of employment but lies across a regional boundary. Woods (2013) comments that “regional development policies ... still tend to work with discrete, delimited territories, in part because of a perceived need to define eligibility for funding and to identify the constituency for accountability” (p 106), and that as such that the potential impact of EU regional policy, “can be compromised ... by an overly rigid approach to defining regions territorially” (p 107). Rather, Woods argues for EU regional policy to adopt a more relativist approach, embracing ‘fuzzy boundaries’, recognizing the imprecision of territories, and permitting “regional development programmes to engage and support networks, activities and actors outside their defined territory but contributing to the regional economy” (p 106).

Even where the territories for territorial development are not constrained to existing administrative geographies but specifically constructed, they still tend to be bounded spaces and thus can exclude key nodes in the functional networks of the rural-urban interface. This is especially the case for development programmes specifically targeted at rural areas, such as the previous Objective 5b programme of the European Structural Funds before 2007, with Ward and McNicholas (1998) describing the construction of an Objective 5b region in eastern England that was designed to maximise the land area covered for the allotted population ceiling, and which consequently excluded small and medium towns that were the major employment and service providers for the area from being eligible for funding. LEADER local action groups, similarly, as schemes funded under EU agricultural and rural development policy rather than regional policy, are constrained to just one side of the rural-urban interface. In several countries, LEADER local action groups (LAGs) have been constructed around entirely new territories, larger than municipalities but smaller than administrative regions. In such cases, LAGs can also be confronted with the challenge of establishing the material and imagined coherence for their territory, with the latter aspect involving efforts to build a new regional identity, as Messely et al. (2013, 2014, 2015) examine in the case of Flanders. Accordingly, Wellbrock et al. (2012) describe the participatory engagement of local residents in ‘regional learning’ to identify development priorities and build material and imagined coherence in the periurban district of Westerkwartier in the northern Netherlands.

The bifurcation of the rural and the urban in EU funding programmes is critiqued by Franzen et al (2008) as contributing towards the perception of rural areas as a unified category rather than as individual regions with diverse and specific combinations of strengths and weaknesses. Moves towards more integrated territorial development strategies that focus more on functional regions transcending rural and urban space are evident in many countries, including projects based around the notion of the city-region, discussed further below. Urban-centred regional development programmes have, however, also been criticised for reproducing assumptions that cities are the economic drivers for wider regions, and that urban growth will 'trickle-out' to surrounding rural areas, with "cities as the locomotives of economic development, and rural areas as carriages being pulled along in the wake of the great modern metropolis" (Shucksmith, 2008: 63).

The developmentalism critiqued by Shucksmith recalls earlier modernisation discourses, discussed in section 2, that positioned urbanization as the solution for addressing deprivation and economic under-development in rural areas. This earlier thinking had been taken to its extreme in some aspects of central-planning in eastern Europe, especially in the Soviet Union. Kūle (2008), writing on Latvia, notes that "Soviet ideology insisted that rural-urban differences must be liquidated, and planned 'rural urbanisation' was the chosen policy and local spatial identity was denied" (p 14), even as at the same time controls on mobility reinforced the rural-urban binary by keeping urban and rural residents apart.

The challenge for economic development in the rural-urban interface in spatial terms, therefore, is striking the balance of recognizing the functional inter-connections between urban and rural areas, whilst avoiding the trap of urban bias, and constructing policies and projects that can facilitate development in both rural and space localities and be tailored towards specific local circumstances.

5.4 From absolute to relative space: Spatial planning

The transition from thinking in terms of absolute space to thinking in terms of relative (or even relational space) has also been evident in planning policy in Europe. Conventionally, planning in many European countries, and notably in Britain and the Netherlands, has emphasized the strict separation of urban and rural space. In other words, the city and the countryside were perceived as absolute spaces with hard borders that should not be transgressed. As Murdoch and Lowe (2003) discuss, this thinking originated in response to concerns about urban expansion in the inter-war period and the perceived disorderliness of the blurring of rural and urban landscapes through ribbon development and the intrusion into the countryside of urban features such as billboards (see also Matless, 1998). The Town and Country Planning Act 1947 in Britain consolidated this approach by introducing a system of development control designed at enforcing the separation of rural and urban space, through instruments including the designation of 'green belts' around major cities, the drawing of development 'envelopes' around smaller towns and villages, and the use of planning permissions to regulate new building, with new constructions in open countryside prohibited except for agricultural buildings (Gallent et al., 2006, 2008). Similarly, in the Netherlands, concepts of the 'compact city', 'functional segregation' and 'spatial quality' have informed the strict compartmentalisation of urban and rural land uses and the protection of rural character (spatial quality) through restricted development (Boelens, 2011; Busck et al., 2009). Urban expansion has been rigidly regulated through the VINEX approach based on the exact delineation of urban expansion areas to accommodate projected population demands, combined with strict licensing of development, and the designation of functional zones for land uses including housing, retail, industry, food production and nature conservation.

The impact of the strict spatial separation of the rural and the urban is most apparent in the rural-urban fringe, where the urban edge is much starker and clearly delineated in Britain and the Netherlands than it is in North America, or in some other parts of Europe. As Gallent et al. (2006) describe, "in a few places this policy has

resulted in a sudden switch between urban and rural land uses, with housing abruptly giving way to rough grazing” (p 463). In Britain, in particular, green belts succeeded in limiting urban sprawl and tightly constraining the built-up areas of major cities, but they have also in effect produced a displaced suburbanization, with out-migrants from cities jumping the protected area and driving settlement growth and housing development in rural areas beyond the greenbelt (Murdoch and Marsden, 1994). Moreover, Gallent et al. (2006) note that even in the context of strict development controls, land use in the rural-urban fringe is mixed, containing various activities unwanted or unable to be accommodated within urban areas, such as waste dumps, sewage plants, electricity sub-stations, car breakage yards, shopping malls and open car storage. Gallent et al. suggest that these activities were directed to the rural-urban fringe not because of proactive planning, but because the transitional zone of the fringe was considered to be the least contentious site. Planning sought to keep these land uses separate from urban uses such as housing and schools, but “they are also separate from each other and are rarely integrated into the former agricultural landscape” (Gallent et al., 2006: 464).

More recently, land use planning has been complemented by the development of more strategic spatial planning, which is concerned not only with land use, but also with economic development, transport, service provision and ecosystem services (Allmendinger and Haughton, 2007; Haughton et al., 2010; Healey, 2004; Heley, 2013; Jensen and Richardson, 2001). Spatial planning is concerned with relative space, focused not on policing the differences between spaces or land uses, but on the connections between places. It is strategic not only in the sense of having a long-term vision, but also in adopting a panoptic view sitting above local government territories. As such, spatial planning directly engages with rural-urban interactions and with the need to plan rural and urban areas together. Since 1999, the European Spatial Development Perspective (ESDP) has promoted spatial planning at all scales within the European Union, and emphasised “the need for a new urban-rural relationship, as a means of overcoming the dualism between city and countryside and as an essential prerequisite to achieving territorial cohesion” (Gallent et al., 2008: 294). Examples of spatial planning can be found across the ROBUST case study countries (Box 2).

Some versions of spatial planning further reject the notion of absolute space by adopting concepts of ‘soft spaces’ and ‘fuzzy boundaries’ to emphasize the blurring and porosity of regions, including the blurring of urban and rural territories (Allmendinger and Haughton, 2007; Haughton et al., 2010). As Brown and Shucksmith (2017) summarise, advocates for these approaches “argue that these spaces provide an opportunity to address mismatches between administrative and functional areas by creating bespoke spaces for dealing with specific issues such as regeneration, integrating different sectors such as transport, infrastructure, and education, in processes operating at various scales” (p 295). A notable example is the Wales Spatial Plan, produced in 2004, which articulated a national spatial planning vision for Wales based on six functional regions encompassing both rural and urban localities, differentiated not by hard borders but by fuzzy boundaries (Figure 9). Yet, as Heley (2013) describes, the translation of the spatial plan vision into policy delivery through existing and territorially-bounded local authorities was confronted by the disconnect between absolute and relative models of space, noting that “the use of fuzzy boundaries in distinguishing these subregions has caused further confusion as to which localities and local authorities belong to which area(s)” (p 1333). This observation illustrates a wider critique directed towards the concepts of ‘soft spaces’ and ‘fuzzy boundaries’ which is that their indeterminacy has the potential to obscure power relations and escape democratic scrutiny (Brown and Shucksmith, 2017).

BOX 2: Examples of Spatial Planning in ROBUST case study countries

Stadt-Land-Partnerschaften [urban-rural partnership] (Germany) - A demonstration project funded by the Bundesministerium für Verkehr, Bau und Stadtentwicklung as part of a programme of 'Demonstration Projects of Spatial Planning'. 'Stadt-Land-Partnerschaften' focused on strengthening the competitiveness of regions by enabling urban and rural areas to take over responsibility for the whole region via specific projects in partnerships. The demonstration project continued and deepened the prior project 'Supra-regional partnerships – innovative projects for cooperation, networking and shared responsibility in city regions'. The basic thesis was that growth and innovation can be promoted regionally in a better way when the potentials of urban and rural areas are combined and a region joins forces. A related aim was to promote sustainable development of larger city-regions. A central element in implementation was an improved and jointly coordinated communication and decision-strategy between public and private actors. Key issues were the sharing of functions, the mutual benefits that can be obtained, effects on innovation and growth, the question of enabling legal, financial and infrastructural conditions, the most effective regional planning and spatial development policy instruments, the question how companies can be mobilised for taking over regional responsibilities, and the role of sectoral policies, as well as of the state and regional planning. (Reference: Obersteg et al. (2013))

More information:

http://www.bbr.bund.de/BBSR/DE/Veroeffentlichungen/BMVBS/Sonderveroeffentlichungen/2012/DL_StadtLandPartnerschaften.pdf?blob=publicationFile&v=2

Menukaart / Geldersplussenbeleid [Menu card / Gelderland Plus Policy] (Netherlands) - A project in the municipality of Ede / Food Valley Region in the province of Gelderland that takes a novel spatial planning approach to rural-urban interactions. Its underlying principle is that a socially and economically vibrant countryside is required for the mutual benefits of rural-urban relations to be realised, which needs a balance to be struck between the development of enterprises and the protection of the 'spatial quality' or rural character of the countryside. Enterprises that request planning permission for new developments that do not fit with the local plan are required to propose 'plusses' that contribute to the spatial quality as compensation. The 'plusses' are discussed with direct neighbours, with examples including the demolition of derelict farm buildings, development of nature reserves, tree planting or other landscaping, restoration of and cultural heritage. The Plus Policy was originally devised for intensive livestock farming but has been expanded to non-agricultural enterprises. More recently, enterprises have also been permitted to make contributions to social quality, such as offering employment to people with disabilities, or contributing to village amenities.

More information: <https://www.gelderland.nl/geldersplussenbeleid>,

<https://www.gelderland.nl/Menukaart-voor-ontwikkelingen-in-ons-buitengebied>

Plan de Acción Territorial Metropolitano de Valencia (PATEVAL) [Metropolitan Territorial Action Plan for Valencia] (Spain) - PATEVAL is a comprehensive spatial planning instrument on a supramunicipal scale designed to alleviate issues arising from the absence of coordination of general structural planning for the municipalities around Valencia. PATEVAL covers 90 municipalities in the metropolitan area of Valencia and its surrounding functional region, including Serranos and Hoya de Buñol, with a total population of 1.8 million inhabitants. The main dimensions of the plan include: 1) the definition and characterization of green infrastructure with the objective of conserving land with environmental, territorial, landscape, productive and cultural values; 2) establishing the frame of reference for the city system, including identifying land sectors and defining strategic supramunicipal areas; 3) work on mobility infrastructures, enabling Valencia to connect with global nodes and easing congestion; 4) landscape studies to determine appropriate units for zoning non-development land; 5) establishing regulations to coordinate all municipal plans in areas of rural land regulation, housing, public facilities and public transport.

More information: <http://www.habitatge.gva.es/web/planificacion-territorial-e-infraestructura-verde/plan-de-accion-territorial-metropolitano-de-valencia-pateval>

Plano Regional de Ordenamento do Território do Oeste e Vale do Tago (PROT-OVT) [Regional Spatial Plan for the West and Tagus Valley] (Portugal) - The West and Tagus Valley Regional Plan, approved in 2009, establishes the territorial development strategy for the West and Tagus Valley Region, integrating the options established at national level and considering the sub regional and municipal strategies of local development. The strategy outlined for the West and Tagus Valley is based on the valorisation of the locative advantage of proximity to the great urban area of Lisbon, preserving and valuing the internal natural systems (acting as a big Green Belt), promoting the strengthening of the economy of the West and the Tagus Valley and the green products and activities. One of the four strategic axes of this Plan is focused on the New Ruralities, having as prime objectives: 1) Increase and consolidate, in a sustainable way, the competitiveness of the agricultural, forestry and agricultural production ranks, valuing products with a high degree of differentiation and quality, and guaranteeing an environmental, landscape, biodiversity and natural resource valorisation, and exploitation of rural tourism; 2) Requalify and consolidate irrigated agriculture, associated with the promotion of sustainable mechanisms for the management of infrastructure and natural resources, and by re-dimensioning the transformation and commercialization structures; 3) Innovate at the urban-rural articulation, diversifying the economy and the agricultural and non-agricultural functionalities associated with the rural area, directed by a sustainable use of natural resources and rural heritage and betting on a qualified rurality, through the development of technical skills, Improving the organization of productive sectors, and broadening the range of collective and public interest services supported on the Internet and in the use of ICT.

More information:

<http://www.ccdr-lvt.pt/uploader/index.php?action=download&field=http://www.ccdr-lvt.pt/files/5521f64c7e495a24d3226c5e81bddad2.pdf&fileDesc=PROTOVT>

Vislon Rheintal [Rhine Valley Vision] (Austria) - Vislon Rheintal is a spatial planning initiative across 29 municipalities in the Rhine Valley in the Austrian province of Vorarlberg. It emerged from discussions around the turn of the millennium, and since 2004 has involved the analysis of themes including socio-cultural development, settlement structure and mobility, landscape and open space, business locations, community facilities and regional cooperation. These analyses have promoted new paths of development and cooperation in the region. In 2013, the cross-border Agglomeration Rheintal project was established with twelve communities in the Swiss canton of St Gallen, involving measures for the management and coordination of settlement and landscape planning, public transport and traffic development.

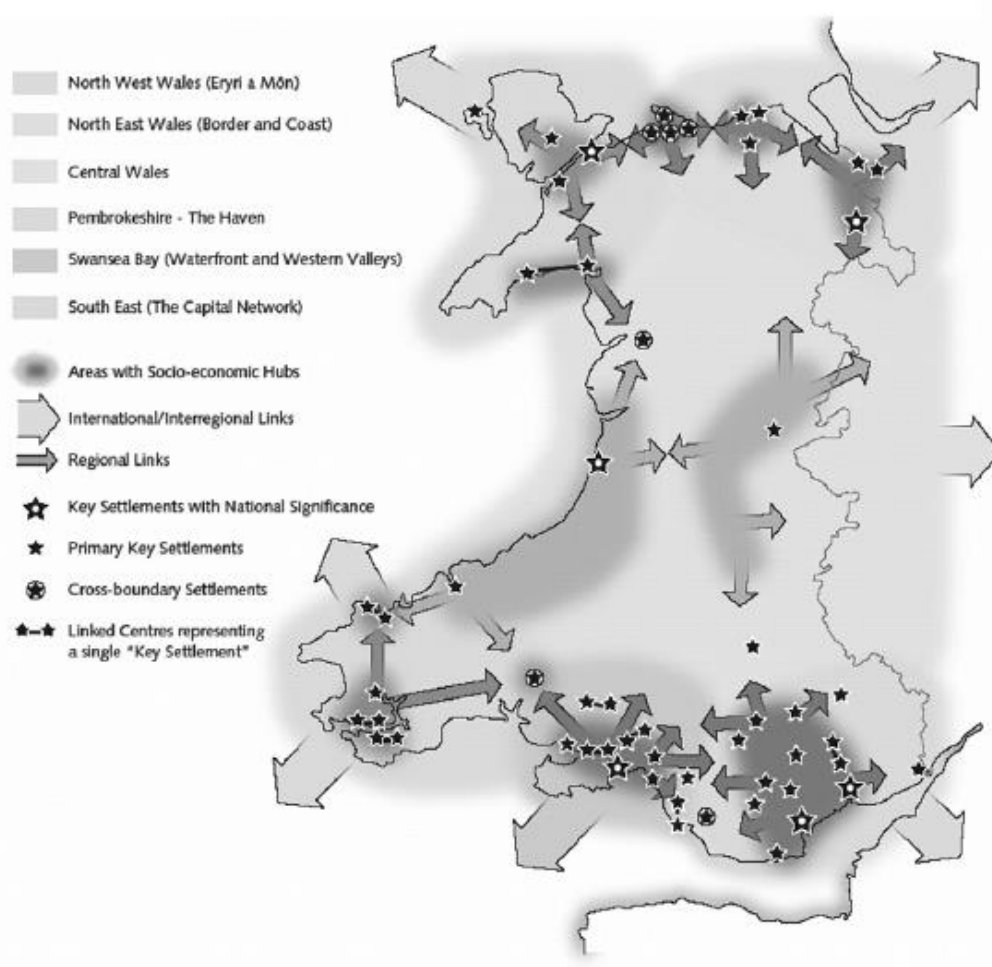
More information:

<http://www.vision-rheintal.at/downloads-a-z/publikationen.html>

<https://www.regionrheintal.ch/de/fachgruppen/agglomerationsprogramm.html>

Figure 9: The Wales Spatial Plan National Vision

The National Vision



(Welsh Government 2004, from Heley, 2013)

5.5 Relative space: City Regions

Related to spatial planning is the concept of the city-region, which has also gained prominence in European policy in recent years. The origins of the term are often traced back to the British planner Patrick Geddes, who as early as 1915 had called for “a thorough revision of our traditional ideas and boundaries of country and town” (Geddes, 1915: 28-29) and coined the term ‘city-region’ to describe the expanded urban areas that he argued should be the focus of governance (although in later work he favoured the term ‘conurbation’, which now carries a clearly different meaning) (Coombes, 2014). The twenty-first century renaissance of the concept reflects its utility for addressing all of the policy challenges outlined in the section above: it fits the approach

of spatial planning, identifies a space for integrated policy-making and delivery, is seen as a model for economic development, and can be the basis for new structures of administration and governance. The term can be used descriptively or analytically to examine the region around a city, but can also denote the territory that is the subject of a plan, a policy intervention, or a governance structure. In some cases, administrative regions are aligned with city-regions, whilst in others city-regions have been given new supra-local forms of governance. In England, for example, directly elected mayors have been introduced for some city-regions, with specific powers in relation to areas such as strategic planning and transport and a coordinating role with the continuing local authorities (Etherington and Jones, 2016). More often, city-regions are managed through groupings or partnerships of autonomous local government bodies (see box 3) (see also Etherington and Jones, 2009; Healey, 2009; Korcelli-Olenjniczak, 2015; Rodriguez-Pose, 2008; Turok, 2009).

As such, as city-regions are converted into territorial units of governance they tend to become bounded spaces, with firm delimited borders (Coombes, 2016). The territories of city-regions usually reflect rural-urban interactions and approximate the ‘urban field’ or functional region of the city, though if local government territories are used as building-blocks the boundaries may be constrained by their imperfect territorialities. Furthermore, as Coombes (2016) demonstrates for England, the boundaries of a city-region might be different depending on whether they are defined by starting with the core cities and working outwards, or by starting with the region first. Harrison and Heley observe that spatial planning strategies in England and Wales have swung between these two models, generating “a paralysis that currently grips city-region policymaking” (Harrison and Heley, 2015: 1123). In Jones and Woods’s (2013) terminology, the functional definition of city-regions tends to mean that they have material coherence, but branding strategies may be needed to build imagined coherence, which may be easier if territories are constructed from the regions first.

City-regions are promoted as a solution to the problem of managing rural-urban interactions (OECD, 2011), yet critics have argued that they have a strong urban-centric bias (Harrison and Heley, 2015). Problems of service provision, housing supply and transport tend to be framed around flows grounded in the city, with transport policy, for instance, focused on access to the city from the rural hinterland. Moreover, as tools for economic development, city-regions reproduce the assumptions that cities are the engines of economic growth, critiqued earlier by Shucksmith (2008) with his locomotive metaphor. As Ward summarises, in a critique of city-regionalism in England:

The city region approach reproduces a rural development problem. It establishes and reinforces out-of-date notions of geographical centrality and hierarchies, and it actively marginalises places, consigning them to the periphery, dividing and polarising. City regions are taking root in regional economic development and spatial planning across the UK, and they are raising profound challenges for those involved in the economic development of rural areas. (Ward, 2006: 52)

Here the spatial imaginary of city-regions and their economic model are linked, with Harrison and Heley (2015) arguing that they disregard the economic agency of rural spaces in between cities, and thus “the potential role those interstitial spaces have in contributing to ‘growth beyond the metropolis’ as well as and alongside ‘growth in the metropolis’” (p 1116) (see also Pemberton and Shaw, 2012). Accordingly, Harrison and Heley propose the adoption of more relative or relational perspectives of space into city-region planning, in order to more fully recognize the complex matrix of rural-urban relations and their engagement in global networks. In particular, they highlight three alternative models for framing the relative functions of urban and rural areas within city-regions (p 1128):

- *Spokes with a hub (or hubs)*: recognising those key urban centres which are generating a disproportionate amount of national economic output;

- *Spokes with a formerly dominant hub (or hubs)*: where functional economic linkages relating to former industrial town and cities persist;
- *Spokes with an emerging hub (or hubs)*: recognising the important contribution to growth by smaller functional economies that are otherwise marginalised or excluded by city-first agglomeration approaches.

Harrison and Heley argue that this approach can produce a more inclusive approach to city-regions and spatial planning that “does not require space to be carved up along explicitly territorial lines” (p 1129) and “allows non-cities – market towns, tourism hotspots – to be duly recognised and considered as functionally important” (ibid.), as well as introducing an important temporal dimension that acknowledges that relations between places may change over time, with some (urban) hubs decreasing in significance (possibly due to deindustrialisation) and new (urban/periurban/rural) hubs emerging and gaining significance as employment and service centres.

BOX 3: EXAMPLES OF CITY-REGION APPROACHES IN ROBUST CASE STUDY COUNTRIES

Oulu City Region, Finland - Oulu is the fifth largest city in Finland, with over 200,000 inhabitants in 2017, located in Northern Ostrobothnia surrounded by extensive rural areas. In 2009-2013, five neighbouring rural municipalities were amalgamated with the city of Oulu to form a new administrative city-region. The new city-region has formed the territory for spatial planning, including the Living Countryside in the City: Development and Marketing Program for Rural Areas of Oulu for 2009-2013 plan, published in 2009, and the KatriOulu project for development and marketing, implemented in 2011-2014.

More information (in Finnish):

Living Countryside in the City: https://www.ouka.fi/c/document_library/get_file?uuid=848c2c7c-e72d-4bdd-9d31-152b62c80f99&groupId=64417

KatriOulu: <http://www.oulu.fi/sites/default/files/content/KantriOuluLoppuraportti.pdf>

Metropolitan Region of Styria, Austria - City-region comprised by the city of Graz, the surrounding district of Graz-Umgebung (created through the amalgamation of 36 municipalities in 2015) and the district of Voitsberg. The city-region is one of seven regions in the Province of Styria (Steiermark), which are used for spatial planning and economic development purposes. The governance of the city-region is managed by a regional board and regional assembly, which form the political and strategic body of the region. In addition to planning and economic development, the region also has a regional mobility plan concerned with developing a sustainable and efficient transport system. Specific projects include the GUSTMOBIL hailed shared-taxi scheme operating in the district of Graz-Umgebung. The Metropolitan Region of Styria participates in the Kooperationsplattform Stadtregion (City-Region Cooperation Platform) network of Austrian metropolitan regions, also including Vienna, Linz, Salzburg and Bregenz).

More information (in German):

http://www.zentralraum-stmk.at/fileadmin/user_upload/03_PROJEKTE/Folder_Leitbild_neu.pdf

http://www.zentralraum-stmk.at/fileadmin/user_upload/RELB_STZR_Bericht.pdf

http://www.raumplanung.steiermark.at/cms/dokumente/12482302_55323233/50bb239e/REPRO_SZR_2016.pdf

Swansea Bay City Region, UK (Wales) - The Swansea Bay City Region is the second 'city region deal' to have been signed in Welsh, following the Cardiff Capital City Region, broadly following a model implemented in England. The initiative is focused on economic development, with eleven projects across the themes of 'economic acceleration', 'life science and wellbeing', 'energy' and 'smart manufacturing', as well as a cross-cutting emphasis on digital infrastructure. The programme is supported by a package of co-funding from the UK and Welsh governments, other public sector agencies and private sector investment. The city-region is focused on the city of Swansea and includes neighbouring industrial towns but also the substantially rural counties of Carmarthenshire and Pembrokeshire, roughly following the Wales Spatial Plan. Unlike city-region deals in England, the city-region has not assumed any public service delivery functions, and there is no directly elected mayor. Instead the city-region is managed as a partnership of local authorities. The Welsh Government has however proposed that the city-region should form the framework for 'joint-governance' arrangements with shared public service delivery between the local authorities in the region.

More information: <http://www.swanseabaycitydeal.wales/about/>

5.6 Toward relational space in policy and governance?

As discussed in the above sections, elements of notions of both absolute space and relative space have been incorporated into governance and spatial planning policies and structures, but designing systems of governance that can reflect relational space is more challenging. The more-than-territorial character of relational space and its rejection of boundaries is difficult to accommodate in administrative structures that require some definition of the scope and limits of authority and accountability. There are examples of governance structures that display relational features, for example with regard to commodity or supply chains, and these can involve connecting distant urban and rural contexts. For instance, the regulatory management of supermarket supply chains involves the decisions and preferences of urban-based supermarket executives – or even urban consumers – dictating the farming practices, environmental standards and labour conditions in rural communities, often on different continents, sometimes with unintended consequences (Freidberg, 2003; Konefal et al., 2005). However, these tend to be privatised regulatory structures, involving private corporations and third-party certification bodies, rather than state-sanctioned government.

Similarly, relational forms of governance may also be identified with regard to elements of natural resource management, ecosystem services or food provision, focused on specific networks of relations and commonly controlled by partnerships, potentially involving local government bodies but also private and civil society organizations (see box 4). Like supply chain management, these relational structures are possible because they are tightly focused on a specific resource or sector and do not attempt wider territorial governance.

However, to more comprehensively incorporate relational dimensions of space into governance models requires some form of hybrid amalgamation of territorial and relational space. Jones et al. (2013), for instance, consider whether aspects of relational thinking can be combined with the territorial spaces of conventional local government by exploring how local government officials think about their 'patch', or their "domain of action and/or responsibility" (p 193), understood both in terms of spatial extent but also of relational connections. Brown and Shucksmith (2017) go further in developing a hybrid model of 'multijurisdictional governance' at the rural-urban interface, which they argue is able to engage with extra-local social and economic flows and relations whilst drawing authority from its grounding in a particular territory (see also section 4). Referring to examples from the United States including 'smart growth' planning in Walworth County, Wisconsin, wildfire suppression around Flagstaff, Arizona and the New York City watershed (see box 5), they outline a model of governance in which local government actors have the legitimacy and capacity to act because they are grounded in particular bounded territories, but use cooperation and collaboration with other actors and agen

BOX 4: WATER WITH INTEGRATED LOCAL DELIVERY (WILD) PROJECT, UK

The Water with Integrated Local Delivery (WILD) project is an initiative involving the co-governance of ecosystem services in the Costwold Hills area of Gloucestershire and Oxfordshire in southern England. WILD involves a payment for ecosystem services programme in which farmers are directly incentivised to reduce applications of metaldehyde (slug pellets) that have created serious water pollution problems in the upper Thames river catchment, affecting downstream water quality including in cities such as London, Oxford and Reading. Under the scheme the private water company, Thames Water, provides funding to farmers to devise and implement alternative management practices, in collaboration with local parish councils and the Farming and Wildlife Advisory Group (FWAG). The project is being trialled as an alternative to developing a complex (and expensive) hi-tech engineering solution.

Reference: Short et al. (2014)

More information: <http://www.ccri.ac.uk/ffcurrent/pes/>

cies to manage relations that transcend local government (and rural-urban) boundaries. Brown and Shucksmith identify similarities between this model and the relativist notion of 'soft spaces' employed in spatial planning, but argue that in contrast to the problem of democratic accountability in 'soft spaces', their hybrid model incorporates accountability through the political grounding of its key actors in specific territories. In this way, "the dynamic model we propose is a hybrid of territorial and relational spaces that enables (bounded) electorates and their executives to engage with relational flows and processes that transcend political and municipal boundaries" (Brown and Shucksmith, 2017: 296).

As such, Brown and Shucksmith suggest that "governance in the rural-urban interface can be more effective, responsive, and accountable where both territorial and relational aspects of rural and urban space are considered and accounted for in policy development and program administration" (Brown and Shucksmith, 2017: 296-297). The approach, they argue, can produce effective governance at the rural-urban interface across policy areas including waste management, infrastructure development, land use planning, natural resource management and local food systems.

BOX 5: THE NEW YORK CITY WATERSHED, USA

New York city obtains drinking water from a system of reservoirs located in the Catskill Mountains and the Hudson River Valley in upper New York State, outside of the territorial boundaries of the city. The water is of high quality and requires little filtering or treatment, but is vulnerable to contamination linked to land use activities on the watershed. New York City authorities have therefore attempted to control land use on the watershed by purchasing conservation easements and restricting some activities such as dairy farming. These actions have provoked tension with local rural communities in the watershed area, with an entrenched local perception of New York City as the 'oppressor' of rural towns dating to the construction of the reservoirs. Tensions were heightened by proposals by New York City in the late 1990s to extend its influence through significant land purchases, restrictions on new sewer constructions, and the designation of buffer zones around water sources. In response, forty-one rural communities in the area formed the Coalition of Watershed Towns which collectively negotiated with New York City Council, reached a mutually beneficial memorandum of agreement in 1997. The agreement permits New York City to purchase land and conservation easements subject to voluntary controls on how it exercises power in relation to this land, and established the Watershed Protection and Partnership Program to protect the watershed's ecology and promote the social and economic vitality of rural communities. As such, Pfeffer and Wagenet (2003) comment that the arrangement "encompasses the interests of both water quality protection for downstream consumers, and the social and economic well-being for upstream residents" (p 114).

References: Brown and Shucksmith (2017), Pfeffer and Wagenet (2003)

6 Summary and Next Steps

This paper has surveyed previous social science research on rural-urban relations, the definitions, conceptual frameworks and methodological approaches employed, and how these have informed and been reflected in policy and models of governance. Interactions and comparisons between rural and urban spaces and societies have been a focus for research for over a hundred years, and whilst there are differences of emphasis and timing between different disciplines and in different national contexts, the broad trajectory over that period has been a movement away from assumptions that the rural and the urban are separate and distinct categories with fundamentally different essences, to recognition that the rural and the urban are socially constructed categories and that 'rural' and 'urban' spaces, cultures and forms are blurred and entangled. This may be characterised as a move from a predominant notion of absolute space, comprised by bounded territories, to incorporating relative and relational perspectives of space.

Within this body of literature a great many concepts have been generated and employed, including, but not restricted to the rural-urban continuum and urban-rural gradient, urbanization and ruralisation, urban fields and city-regions, the rural-urban interface and the rural-urban fringe, and exurban, periurban and rural spaces. Each of these concepts may individually be useful for ROBUST within specific contexts, but reviewed critically together they can also point towards a conceptual framework for ROBUST which might build from the following key points:

- ▶ Rural and urban spaces, societies and economies are not discrete, separate entities but interact with each other and are inherently blurred and entangled in multiple, complex ways.
- ▶ There is no essential definition of either the rural or the urban that can be quantified and precisely delimited on a map. Rather rurality and urbanity are social constructed categories that have different meanings for different people, but which serve a purpose in informing the ordering and regulation of land, landscape, economic activity and social relations.
- ▶ The blurring and hybridisation of rural and urban influences and entities is particularly pronounced in the peri-urban or ex-urban spaces that extend around cities, where different rural and urban forms and claims to meaning jostle and compete, but are not restricted to these zones and may also be found in locations distant from urban centres.
- ▶ The matrix of rural-urban interactions around a city may be perceived as a city-region or urban field, but does not have fixed and firm geographical boundaries. The spheres of influence of cities have fuzzy boundaries, overlap and co-exist in complex multi-polar fields, and may extend along non-spatially-contiguous relations to distant points and localities.
- ▶ The multiple forms of relations between rural and urban spaces may be viewed through the prisms of absolute space, relative space and relational space, which conceptualize the nature of space in different ways, but which may be used in parallel to reveal different perspectives.
- ▶ Local government territories are constructed from the notion of absolute space, with firmly bounded territories, and as such are commonly transcended and over-spilled by rural-urban relations and lack the capacity to adequately govern or regulate these relations.

- Effective governance of rural-urban relations requires approaches that are grounded in the democratic legitimacy provided by the association of governance institutions with territorial space, but which are also able to engage with relational flows and interactions between the rural and the urban.

The subsequent tasks in Work Package 1 will continue to refine and develop this conceptual framework, to be further articulated in Deliverable 1.3., including consideration of its implications for research methodology and for policy development and implementation.

As next steps, Task 1.2, will focus on a synthesis of the conceptual framework with theories on policy-making, governance and inter-regional growth. This will pick up and expand discussion in section 5 of this paper on how rural-urban relations are understood in policy discourse, reproduced through governance structures, and inform strategies for economic development. In particular the concept of smart growth will be examined as a potential model for a more integrated or holistic approach to rural and urban economic development. These topics will be discussed through an expert workshop (Deliverable 1.2) and feed into the elaboration of the ROBUST analytical strategy (Deliverable 1.6).

Task 1.3 will further develop the methodological strategy for ROBUST, again building on a number of questions and topics touched on in this paper. These include the potential use of innovative and novel forms of data and data collection, including for example remotely-sensed data; questions of how to define case study areas to acknowledge a relation dimension, as discussed in Jones and Wood's (2013) model of 'new localities'; and methodological challenge of following relations, including approaches such as counter-topography. The methodological strategy will be presented in Deliverable 1.4.

Finally, particular attention will also be paid to the translation of academic concepts, as presented in this paper, into terms and ideas that can be employed in policy-making and implementation. The glossary at the end of this paper is designed to assist this process, and will be expanded as guidance for policy-makers in Deliverable 1.5.

7 References

- Āboliņa, K. and Zilāns, A. (2002) Evaluation of urban sustainability in specific sectors in Latvia, *Environment, Development and Sustainability*, 4: 299-314.
- Allmendinger, P. and Haughton, G. (2007) The fluid scales and scope of UK spatial planning, *Environment and Planning A*, 39: 1478-1496.
- Amin, A. and Thrift, N. (2002) *Cities: Reimagining the Urban*. Cambridge/Oxford: Polity and Blackwell.
- Amin, A. and Thrift, N. (2016) *Seeing Like a City*. London: Wiley.
- André, M., Mahy, G., Lejeune, P. and Bogaert, J. (2014) Vers une synthèse de la conception et une définition des zones dans le gradient urbain-rural [Towards a synthesis of concepts and a definition of zones in the urban-rural gradient], *Biotechnologie, Agronomie, Société, Environment*, 18: 61-74.
- Aragau, C. and Charvet, J-P. (2010) Reviving small towns in the Paris periurban fringes, in Halseth, G., Markey, S. and Bruce, D. (eds) *The Next Rural Economies*, Wallingford: CABI, pp 179-192.
- Aureli, D. (2016) The Third Way, Rurban Way of Life, in SGEM 2016, Book 4: Performing Arts, Architecture, and Design Conference Proceedings, Volume II, pp 805-810.
- Bai, X. (2007) Industrial ecology and the global impacts of cities, *Journal of Industrial Ecology*, 11: 1-6.
- Balk, D. (2009) More than a name: why is global urban population mapping a GRUMPy proposition? In Ali, G., Hasson, S., and Khan, A. M. (eds) *Global Mapping of Human Settlement*, New York: Taylor and Francis, pp 145-161.
- Barnett, A. (1998) Securing the future, in Barnett, A. and Scruton, R. (eds) *Town and Country*, London: Jonathan Cape, pp 329-342.
- Barski, J. (2017) Post-transformation industrial suburbanisation in main agglomerations of the Polish-German border region, paper presented to the Warsaw Regional Forum, October 2017.
- Basile, E. and Cecchi, C. (2001) La trasformazione post-industriale della campagna: dall'agricoltura ai sistemi locali rurali [The post-industrial transformation of the countryside: from agriculture to local rural systems], Torino: Rosenberg & Sellier.
- Bauer, G. and Roux, J. (1976) *La rurabisation ou la ville éparpillée*, Paris: Seuil.
- Bauls, A. and Krišjāne, Z. (2000) Latvian population mobility in the transition period, *Folia Geographica*, 8: 24-35.
- Bell, M. M. (1992) The fruit of difference: the rural-urban continuum as a system of identity, *Rural Sociology*, 57: 65-82.
- Bell, M. M. (1994) *Childerley*, Chicago: University of Chicago Press.
- Bell, S., Penēze, Z., Nikodemus, O., Montarzino, A. and Grīne, I. (2007) The value of the Latvian rural landscape, in Roca, Z., Spek, T., Terkneli, T., Plieninger, T. and Höchtl, F. (eds) *European Landscapes and Lifestyles: The Mediterranean and Beyond*, Lisbon: Edições Universitárias Lusófonas, pp 347-362.
- Beluszky, P. (1965) Falusi településeink osztályozása [Classification of Hungarian villages], *Földrajzi Ertesítő*, 14, 149-165.
- Beluszky, P. and Sikos, T. (1983) *Typology of rural settlements in Hungary*, Budapest: Hungarian Academy of Sciences Geographical Research Institute.
- Berger, M. (2004) *Les périurbains de Paris: de la ville dense à la métropole éclatée?* Paris: CNRS Editions.
- Berry, B. and Lamb, R. (1974) The delineation of urban spheres of influence: evaluation of an interaction model, *Regional Studies*, 8, 185-190.
- Bertrand, N. and Kreibich, V. (eds) (2006) *Europe's City-Regions Competitiveness: Growth, Regulation and Peri-urban Land Management*, Assen: Royal Van Gorcum.
- Bērziņš, M. (2011) Iedzīvotāju ģeogrāfiskās mobilitātes loma suburbanizācijas norisēs Latvijā [The role of population mobility in suburbanisation processes of Latvia], Doctoral Thesis, University of Latvia.

- Beynon, H. and Hudson, R. (1993) Place and space in contemporary Europe: some lessons and reflections, *Antipode*, 25: 177-190.
- Beynon, M. J., Crawley, A. and Munday, M. (2016) Measuring and understanding the differences between urban and rural areas, *Environment and Planning B: Planning and Design*, 43: 1136-1154.
- Bhagat, R. B. (2005) Rural-urban classification and municipal governance in India, *Singapore Journal of Tropical Geography*, 26: 61-73.
- Bibby, P. and Shepherd, J. (2004) Developing a New Classification of Urban and Rural Areas for Policy Purposes – Methodology, Rural Evidence Research Centre Working Paper, London: RERC. http://www.statistics.gov.uk/geography/downloads/Methodology_Reports.pdf.
- Bodiguel, M., Buller, H. and Lowe, P. (1990) Concepts, definitions and research traditions, in Lowe, P. and Bodiguel, M. (eds) *Rural Studies in Britain and France*, London: Belhaven, pp 37-52.
- Boelens, L. (ed.) (2011) *Compacte Stad Extended: Agenda voor toekomstig gebied, onderzoek en ontwerp* [Compact City Extended: Outline for future policy, research and design], Rotterdam: Uitgeverij 010.
- Bonnamour, J. (1973) *Géographie rurale, méthodes et perspectives*, Paris: Masson.
- Bonner, K. (1998) Reflexivity, sociology and the rural-urban distinction in Marx, Tonnies and Weber, *Canadian Review of Sociology and Anthropology*, 35: 165-189.
- Bradford, A., Brook, R. and Hunshal, C. S. (2003) Wastewater irrigation in Hubli-Dharwad, India: implications for health and livelihoods, *Environment and Urbanization*, 15: 157-170.
- Bradley, T. and Lowe, P. (eds) (1984) *Locality and Rurality: Economy and Society in Rural Regions*. Norwich: Geo Books.
- Brenner, N. (ed) (2014a) *Implosions/Explosions: Towards a Study of Planetary Urbanization*, Berlin : Jovis.
- Brenner, N. (2014b) Introduction: Urban theory without an outside, in Brenner, N (ed) *Implosions/Explosions: Towards a Study of Planetary Urbanization*, Berlin : Jovis, pp 14-35.
- Brenner, N., Madden, D. and Wachsmuth, D. (2011) Assemblage urbanism and the challenges of critical urban theory, *City*, 15: 225-240.
- Briquel, V. and Collicard, J-J (2005) Diversity in the rural hinterlands of European cities, in Hoggart, K. (ed.) *The City's Hinterland: Dynamism and Divergence in Europe's Peri-urban Territories*, Aldershot: Ashgate, pp 19-40.
- Brown, D. L. and Shucksmith, M. (2017) Reconsidering territorial governance to account for enhanced rural-urban interdependence in America, *Annals of the American Academy for Political and Social Science*, 672: 282-301.
- Bryant, C., Russwurm, L. H. and McLellan, A. G. (1982) *The City's Countryside: Land and its Management in the Rural-Urban Fringe*. New York: Longman.
- Bulderberga, Z. (2014) *Pilsētas – lauku mijiedarbības izvērtējums Latvijas reģionos* [Evaluation of urban-rural interactions in regions of Latvia], Doctoral Thesis, University of Latvia.
- Bunce, M. (2003) Reproducing rural idylls, in Cloke, P. (ed.) *Country Visions*, Harlow: Pearson.
- Burchfield, M., Overman, H. G., Puga, D. and Turner, M. A. (2006) Causes of Sprawl: A Portrait from Space, *The Quarterly Journal of Economics*, 121: 587-633.
- Burdick-Will, J. and Logan, J. R. (2017) Schools at the rural-urban boundary: blurring the divide? *Annals of the American Academy of Political and Social Science*, 672: 185-201.
- Busck, A. G., Hidding, M. C., Kristensen, S. B. P., Persson, C., and Praestholm, S. (2009) Planning approaches for rural areas: case studies from Denmark, Sweden and the Netherlands, *Geografisk Tidsskrift*, 109: 15-32.
- Cabiddu F. and Pettinao D. (2013). External Knowledge, Territorial Inertia and Local Development: An Exploratory Case Study, *European Planning Studies*, 21: 1297-1316.
- Cacciari, M. (2004) Nomadi in prigione [nomads in prison], in Bonomi, A. and Abruzzese, A. (eds) *La città infinita* [The Infinite City], Milano: Bruno Mondadori Editore.

- Cadene, P. (1990) L'usage des espaces périurbains, une géographie régionale des conflits, *Etudes Rurales*, 118/119: 225-267.
- Cadieux, K. V. and Hurley, P. (2011) Amenity migration, exurbia, and emerging rural landscapes: global natural amenity as place and as process, *Geojournal*, 76:297-302.
- Camarero, L. (1993) Del éxodo rural y del éxodo urbano: Ocaso y renacimiento de los asentamientos Rurales en España. Madrid: Serie Estudios, Ministerio de Agricultura, Pesca y Alimentación.
- Carruthers, J. I. and Vias, A. C. (2005) Urban, suburban and exurban sprawl in the Rocky Mountain West: evidence from regional adjustment models, *Journal of Regional Science*, 45: 21-48.
- Caruso, G., Peeters, D., Cavailhes, J. and Rounsevell, M. (2007) Spatial configurations in a periurban city: a cellular automata-based microeconomic model, *Regional Science and Urban Economics*, 37: 542-567.
- Castán Broto, V., Allen, A. and Rapoport, E. (2012) Interdisciplinary perspectives of urban metabolism, *Journal of Industrial Ecology*, 16: 851-861.
- Castle, E., Wu, J. and Weber, B. (2011) Place orientation and rural-urban interdependence, *Applied Economic Perspectives and Policy*, 33: 179-204.
- Cattivelli, V. (2013) Between city and countryside: reading the territory thanks to TV series, in Piccinini, L. C. and Taverna, M. (eds) Three Keywords for Utopia in Landscape-Cultural Mosaic, *Proceedings of the XVII IPSAPA Interdisciplinary Scientific Conference*, Volume V., pp 21-32.
- Champion, T., Coombes, M. and Brown, D. L. (2009) Migration and longer-distance commuting in rural England, *Regional Studies*, 43: 1245-1259.
- Chapuis, R. and Brossard, T. (1986) *Les ruraux français*, Paris: Masson.
- Chevalier, M. (1993) Neo-rural phenomena, in *Two Decades of L'Espace Géographique: Special Issue in English*, Paris: Reclus, pp 175-191.
- Chiva, I. (1958) *Les communautés rurales: Problemes, méthodes et exemples des recherches*, Unesco Rapports et documents de Sciences sociales, no 10, Paris: Unesco.
- Clark, J. K., McChesney, R., Munroe, D., and Irwin, E. (2009) Spatial characteristics of exurban settlement pattern in the United States, *Landscape and Urban Planning*, 90: 178-188.
- Cloke, P. (1977) An index of rurality for England and Wales, *Regional Studies*, 11: 31-46.
- Cloke, P. (1989) Rural geography and the political economy, in Peet, R. and Thrift, N. (eds) *New Models in Geography*, London: Unwin Hyman.
- Cloke, P. (1994) (En)culturing political economy: life in the day of a 'rural geographer', in Cloke, P., Doel, M., Matless, D., Phillips, M., and Thrift, N., *Writing the Rural*, London: Paul Chapman.
- Cloke, P. (1997) Country backwater to virtual village? Rural studies and the 'cultural turn', *Journal of Rural Studies*, 13, 367-375.
- Cloke, P. (2006) Conceptualizing rurality, in Cloke, P., Marsden, T. and Mooney, P., *Handbook of Rural Studies*, London: Sage, pp 18-28.
- Cloke, P. and Edwards, G. (1986) Rurality in England and Wales 1981: A replication of the 1971 index, *Regional Studies*, 20: 289-306.
- Cloke, P. and Goodwin, M. (1992) Conceptualizing countryside change: from post-Fordism to rural structured coherence, *Transactions of the Institute of British Geographers*, 17: 321-336.
- Cloke, P. and Little, J. (1990) *The Rural State?* Oxford: Oxford University Press.
- Cloke, P. and Little, J. (eds) (1997) *Contested Countryside Cultures*, London and New York: Routledge.
- Clout, H. (1972) *Rural Geography: An Introductory Survey*, Oxford: Pergamon Press.
- Cooke, P. (ed.) (1989) *Localities: The Changing Face of Urban Britain*, London: Unwin Hyman.
- Conradson, D. and Pawson, E. (2009) New cultural economies of marginality: revisiting the West Coast, South Island, New Zealand, *Journal of Rural Studies*, 25: 77-86.

- Coombes, M. (2014) From city-region concept to boundaries for governance: the English case, *Urban Studies*, 51: 2426-2443.
- Copus, A., Psaltopoulos, D., Skuras, D., Terluin, I., and Weingarten, P. (2008) *Approaches to Rural Typology in the European Union*, JRC Scientific and Technical Reports, Seville: Joint Research Centre.
- Corsi, S., Mazzocchi, C., Sali, G., Monaco, F. and Wascher, D. (2015) Local agri-food systems in metropolitan regions: analysis based on case studies of Milan and Paris, *Cahiers Agricultures*, 24: 28-36.
- Countryside Agency, Department of Environment Food and Rural Affairs, Office of the Deputy Prime Minister, Office of National Statistics, and the Welsh Assembly Government (2004) *Rural and Urban Classification 2004: An Introductory Guide*, Cheltenham: Countryside Agency.
- Courtney, P. and Errington, A. (2000) The role of small towns in the local economy and some implications for development policy, *Local Economy*, 15: 280-301.
- Courtney, P., Jones, P., Mayfield, L. and Tranter, R. (2007) Small towns as 'sub-poles' in English rural development? An investigation of rural urban linkages using sub-regional social accounting matrices. *Geoforum*, 38: 1219-1232.
- Cox, K. (1998) Spaces of dependence, spaces of engagement and the politics of scale, or: looking for local politics, *Political Geography*, 17: 1-24.
- Cromartie, J. (2016) Historical development of ERS Rural-Urban classification systems, Appendix B in National Academies (eds) *Rationalizing Rural Area Classifications for the Economic Research Service: A Workshop Summary*, Washington DC: National Academies of Sciences, Engineering and Medicine, pp 145-164.
- Csurgó, B. and Megyesi, B. (2016) The role of small towns in local place making, *European Countryside*, 4: 427-443.
- Dax, T. (1996) Defining rural areas: international comparisons and the OECD indicators, *Rural Society*, 6: 3-18.
- Dax, T. (1999) The emergence of new uses for rural spaces and inter-relations of rural and urban labour markets, in Crampton, G. (ed.) *Regional Unemployment, Job Matching and Migration*, London: Pion, pp 221-234.
- De Beer, J., van der Gaag, N. and van der Erf, R (2014) *New Classification of Urban and Rural NUTS2 Regions in Europe*, NIDI Working Paper 2014/3, The Hague: Netherlands Interdisciplinary Demographic Institute, <https://www.nidi.nl/shared/content/output/papers/nidi-wp-2014-03.pdf>
- Decker, E. H., Elliott, S., Smith, F. A., Blake, D. R., and Rowland, F. S. (2000) Energy and material flow through the urban ecosystem, *Annual Review of Energy and the Environment*, 25: 685-740.
- Derruau, M. (1967) *Précis de géographie humaine*, Paris: Armand Colin.
- De Vries, M. and Sobis, I. (2013) Consolidation in local government: an international comparison of arguments and practices, *Administration*, 61: 31-50.
- Dion, R. (1934) *Essai sur la formation du paysage rural français*, Tours: Arrault.
- Donis, J. (2003) Designating a greenbelt around the city of Riga, Latvia, *Urban Forestry Urban Greenery*, 2: 31-39.
- Dorélien, A., Balk, D. and Todd, M. (2013) What is urban? Comparing a satellite view with the Demographic and Health Surveys, *Population and Development Review*, 39: 413-439.
- Douglas, D. J. A. (2016) Power and politics in the changing structure of rural local government, in Shucksmith, M. and Brown, D. L. (eds) *Routledge International Handbook of Rural Studies*, Abingdon: Routledge, pp 601-614.
- Dubois, A., Copus, A. and Hedström, M. (2012) Local embeddedness and global links in rural areas: Euclidean and relational space in business networks, in Hedberg, C. and do Carmo, R. (eds) *Translocal Ruralism*, Dordrecht: Springer, pp 103-124.
- Duncan, S. (1989) What is locality?, in Peet, R. and Thrift, N. (eds) *New Models in Geography*, Volume 2, London: Unwin Hyman, pp 221-254.
- Duncan, S. and Savage, M. (1989) Space, scale and locality, *Antipode*, 21: 179-206.
- Eglite, P. (2000) The dynamics of Latvia's urban and rural population at the end of the 20th century, *Folia Geographica*, 8: 36-46.

- Englund, H. (2002) The village in the city, the city in the village: migrants in Lilongwe, *Journal of Southern African Studies*, 28: 137-154.
- Entrena, F. (2005) Urban spread effects and rural change in city hinterlands: the case of two Andalusian cities, in Hoggart, K. (ed.) *The City's Hinterland*, Aldershot: Ashgate, pp 95-118.
- Entrena Durán, F. (2005) Procesos de periurbanización y cambios en los modelos de ciudades: un estudio europeo de casos sobre sus causas y consecuencias, *Papers: Revista de Sociologia*, 78: 59-88.
- Erdei, F. (1974) *A Magyar falu [The Hungarian Village]*, Budapest: Akadémiai Kiadó.
- Etherington, D. and Jones, M. (2009) City-regions: new geographies of uneven development and inequality, *Regional Studies*, 43: 247-265.
- Etherington, D. and Jones, M. (2016) The city-region chimera: the political economy of metagovernance failure in Britain, *Cambridge Journal of Regions, Economy and Society*, 9: 371-389.
- Eurostat (2010) Eurostat Regional Yearbook 2010: A Revised Urban-Rural Typology, http://ec.europa.eu/eurostat/web/products-statistical-books/-/RY_CH15_2010
- Eurostat (2017) Urban-rural typology, http://ec.europa.eu/eurostat/statistics-explained/index.php/Urban-rural_typology
- Frankenberg, R. (1966) *Communities in Britain*, Harmondsworth: Penguin.
- Franzen et al. (2008) Herausforderung Vielfalt – Ländliche Räume in Struktur- und Politikwandel [The Diversity Challenge – Rural Areas in the Context of Structural and Policy Change], Hannover: ARL.
- Freidberg, S. (2003) Cleaning up down south: supermarkets, ethical trade and African horticulture, *Social and Cultural Geography*, 4, 27-43.
- Frick, H-J. and Hockeler, M. (2008) Interkommunale Zusammenarbeit – Hanreichnung für die Kommunalpolitik [Inter-communal Cooperation: Guidance for local policies], Bonn: FES.
- Friedmann, J. and Miller, J. (1965) The urban field, *Journal of the American Planning Association*, 31: 312-320.
- Friedland, W. H. (1982) The end of rural society and the future of rural sociology, *Rural Sociology*, 47: 589-608.
- Frouws, J. (1998) The contested redefinition of the countryside: an analysis of rural discourses in the Netherlands, *Sociologia Ruralis*, 38: 54-68.
- Furuseth, O. and Lapping, M. (eds) (1999) *Contested Countryside: The Rural-Urban Fringe in North America*, Aldershot: Ashgate.
- Gallent, N., Mace, A. and Tewdwr-Jones, M. (2005) *Second Homes: European Perspectives and UK Policies*, Aldershot: Ashgate.
- Gallent, N., Bianconi, M. and Andersson, J. (2006) Planning on the edge: England's rural-urban fringe and the spatial-planning agenda, *Environment and Planning B: Planning and Design*, 33: 457-476.
- Gallent, N., Juntti, M., Kidd, S. and Shaw, D. (2008) *Introduction to Rural Planning*, London: Routledge.
- Garner, B. (2017) 'Perfectly positioned': the blurring of urban, suburban and rural boundaries in a southern community, *Annals of the American Academy of Political and Social Science*, 672: 46-63.
- Geddes, P. (1915) *Cities in Evolution: An Introduction to the Town Planning Movement and the Study of Civics*, London: Williams and Norgate.
- George, P. (1963) *Précis de géographie rurale*, Paris: Presses Universitaires de France.
- Glenn, N and Hill L. (1977) Rural-urban differences in attitudes and behaviour in the United States, *Annals of the American Academy of Political and Social Science*, 429, 36-50.
- Goetz, S., Han, Y., Finderis, J., and Brasier, K. (2010) U.S. commuting networks and economic growth: measurement and implications for spatial policy, *Growth and Change*, 41: 276-302.
- Grillitsch, M. and Nilsson, M. (2015) Innovation in peripheral regions: Do collaborations compensate for a lack of local knowledge spillovers?, *The Annals of Regional Science*, 54: 299-321.

- Haartsen, T., Groote, P. and Huigen, P. P. P. (eds) (2000) *Claiming Rural Identities*, Assen: Van Gorcum.
- Halfacree, K. (1993) Locality and social representation: space, discourse and alternative definitions of the rural, *Journal of Rural Studies*, 9: 23-37.
- Hamin, E. and Marcucci, D. (2008) Ad hoc rural regionalism, *Journal of Rural Studies*, 24: 467-477.
- Hammer, M. (2006) Die ökologische Nachhaltigkeit regionaler Metabolismen: Materialflussanalysen der Regionen Hamburg, Wien und Leipzig [Ecological sustainability or regional metabolisms: Material flow analyses of the regions of Hamburg, Vienna and Leipzig], *Natur und Kultur*, 7: 62-78.
- Haraway, D. (1991) *Simians, Cyborgs and Women*. London: Free Association.
- Harrington, V. and O'Donoghue, D. (1998) Rurality in England and Wales 1991: A replication and extension of the 1981 rurality index, *Sociologia Ruralis*, 38: 178-203.
- Harrison, J. and Heley, J. (2015) Governing beyond the metropolis: placing the rural in city-region development, *Urban Studies*, 52: 1113-1133.
- Hart, J. F. (1975) *The Look of the Land*, Englewood Cliffs, CA: Prentice Hall.
- Harvey, D. (1969) *Explanation in Geography*, London: Arnold.
- Harvey, D. (1973) *Social Justice and the City*, London: Arnold.
- Harvey, D. (1987) Three myths in search of a reality in urban studies, *Environment and Planning D: Society and Space*, 5: 367-376.
- Haughton, G., Allmendinger, P., Counsell, D. and Vigar, G. (2010) *The New Spatial Planning: Territorial Management and Fuzzy Boundaries*. London: Routledge.
- Hayden, D. (2004) *A Field Guide to Sprawl*, New York: Norton.
- Healey, P. (2004) The treatment of space and place in the new strategic spatial planning in Europe, *International Journal of Urban and Regional Research*, 28: 45-67.
- Healey, P. (2009) City regions and place development, *Regional Studies*, 43: 831-843.
- Heineberg, H. (2003) Grundriß Allgemeine Geographie: Stadtgeographie, www.millennium.franken.de/fsi/html/skripte/HeinebergStadtgeo.pdf
- Heley, J. (2013) Soft spaces, fuzzy boundaries and spatial governance in post-devolution Wales, *International Journal of Urban and Regional Research*, 37: 1325-1348.
- Heley, J. and Jones, L. (2012) Relational rurals: some thoughts on relating things and theory in rural studies, *Journal of Rural Studies*, 28: 206-217.
- Herington, J. (1984) *The Outer City*. London: Harper and Row.
- Hidle, K., Farsund, A. A. and Lysgård, H. K. (2009) Urban-rural flows and the meaning of borders, *European Urban and Regional Studies*, 16: 409-421.
- Hiner, C. C. (2016) Beyond the edge and in between: (re)conceptualizing the rural-urban interface as meaning-model-metaphor, *Professional Geographer*, 68: 520-532.
- Hines, F., Brown, D. L. and Zimmer, J. (1975) *Social and Economic Characteristics of the Population in Metro and Nonmetro Counties, 1970*, Washington, DC: United States Department of Agriculture Economic Research Service.
- Hoggart, K. (1990) Let's do away with rural, *Journal of Rural Studies*, 6: 245-257.
- Hoggart, K. (ed.) (2005a) *The City's Hinterland: Dynamism and Divergence in Europe's Peri-urban Territories*, Aldershot: Ashgate.
- Hoggart, K. (2005b) City hinterlands in European space, in Hoggart, K. (ed.) *The City's Hinterland: Dynamism and Divergence in Europe's Peri-urban Territories*, Aldershot: Ashgate, pp 1-18.

- Hoggart, K. (2005c) Convergence and divergence in European city hinterlands: a cross-national comparison, in Hoggart, K. (ed.) *The City's Hinterland: Dynamism and Divergence in Europe's Peri-urban Territories*, Aldershot: Ashgate, pp 155-170.
- Ilbery, B. and Maye, D. (2015) The changing dynamics of alternative agri-food networks: a European perspective, in Robinson, G. and Schmallegger, D. (eds.) *Edward Elgar Handbook on the Globalisation of Agriculture*, Cheltenham: Edward Elgar, pp. 425-445.
- Irwin, E. G. and Bockstael, N. E. (2007) The evolution of urban sprawl: evidence of spatial heterogeneity and increasing land use fragmentation, *Proceedings of the National Academy of Science*, 104: 20672-20677.
- Isserman, A. M. (2005) In the national interest: defining rural and urban correctly in research and public policy, *International Regional Science Review*, 28: 465-499.
- Janečková Molnárová, K. and Skřivanová, Z., Kalivoda, O. and Slenička, P. (2017) Rural identity and landscape aesthetics in exurbia: some issues to resolve from a Central European perspective, *Moravian Geographical Reports*, 25: 2-12.
- Jaros, L. (2008) The city in the country: growing alternative food networks in metropolitan areas, *Journal of Rural Studies*, 24: 231-244.
- Jean, Y. and Périgord, M. (2009) *Géographie Rurale*, Paris: Armand Colin.
- Jensen, O. and Richardson, T. (2001) Nested visions: new rationalities of space in European spatial planning, *Regional Studies*, 35: 703-717.
- Jessop, B., Brenner, N., and Jones, M. (2008) Theorizing sociospatial relations, *Environment and Planning D: Society and Space*, 26: 389-401.
- Jones, L., Mann, R. and Heley, J. (2013) Doing space relationally: exploring the meaningful geographies of local government in Wales, *Geoforum*, 45: 190-200.
- Jones, M. (2009) Phase space: geography, relational thinking, and beyond, *Progress in Human Geography*, 33: 487-506.
- Jones, M. (2010) Limits to thinking space relationally, *International Journal of Law in Context*, 6: 243-255.
- Jones, M. and Jessop, B. (2010) Thinking state/space incomposably, *Antipode*, 42: 1119-1149.
- Jones, M. and Woods, M. (2013) New localities, *Regional Studies*, 47: 29-42.
- Jones, O. (1995) Lay discourses of the rural: development and implications for rural studies, *Journal of Rural Studies*, 11: 35-49.
- Katz, C. (2001) On the grounds of globalization: a topography for feminist political engagement, *SIGNS: Journal of Women in Culture and Society*, 26: 1213-1234.
- Kennedy, C., Cuddihy, J. and Engel-Yan, J. (2007) The changing metabolism of cities, *Journal of Industrial Ecology*, 11: 43-59.
- Kolhe, N. P. and Dhote, K. K. (2016) Rurban centres – the new dimension of urbanism, in Viswanathan, C. and Kumar, R. S. (eds) *International Conference on Emerging Trends in Engineering, Science and Technology Proceedings*, Amsterdam: Elsevier, pp 1699-1705.
- Konefal, J., Mascarenhas, M., and Hatanaka, M. (2005) Governance in the global agro-food system: backlighting the role of transnational supermarket chains, *Agriculture and Human Values*, 22: 291-302.
- Kopf, T. et al. (2014) *Administration 2014 – Studie zur interkommunalen Zusammenarbeit in Hessen [Administration 2014 – A Study of inter-municipal cooperation in Hessen]*, Mannheim: Teamwerk.
- Korcelli-Olejniczak, E. (2015) On city-region relations: towards the urban-rural region of Warsaw, *Mitteilungen der Österreichischen Geographischen Gesellschaft*, 157: 129-149.
- Kraemer, C. (2005) Commuter belt turbulence in a dynamic region: the case of the Munich city-region, in Hoggart, K. (ed.) *The City's Hinterland*, Aldershot: Ashgate, pp 41-68.
- Krišjāne, Z. (2001) Jaunas iezīmes Latvijas mazo pilsētu attīstībā [New trends in the development of small towns of Latvia], *Folia Geographica*, 9: 33-41.
- Kūle, L. (2008) Concepts of rurality and urbanity as analytical categories in multidimensional research, *Proceedings of the Latvian Academy of Sciences*, 62: 9-17.

- Lacour, C. and Puissant, S. (2007) Re-urbanity: urbanising the rural and ruralising the urban, *Environment and Planning A*, 39: 728-747.
- Lamb, R. F. (1983) The extent and form of exurban sprawl, *Growth and Change*, 14: 40-48.
- Landis, F. (1940) *Rural Life in Process*, New York: McGraw Hill Book Company
- Lang, T., Henn, S. Sgibnev, W. and Ehrlich, E. (eds) (2015) *Understanding Geographies of Polarization and Peripheralization*, Basingstoke: Palgrave Macmillan.
- Larrubia, R. (1998) El espacio rural: concepto y realidad geográfica, *Baética: Estudios de arte, geografía e historia*, 20: 77-96.
- Larsen, S., Sorenson, C., McDermott, D., Long, J. and Post, C. (2007) Place perception and social interaction on an exurban landscape in central Colorado, *Professional Geographer*, 59: 421-433.
- Lefebvre, H. (1970) *La Révolution Urbaine*, Paris: Gallimard.
- Lehtonen, O., Wuori, W. and Muilu, T. (2014) Työssäkäynnin varaan rakentuvan maaseutuasumisen mahdollisuudet [Opportunities for rural housing based on commuting] *Maaseuden Uusi Aika*, 3: 5-21.
- Lehtonen, O., Wuori, W. and Muilu, T. (2015) Comparing the extent of the spread effects: rural-urban commuting in Finnish working regions, *Journal of Geographic Information Systems*, 7, 29-42.
- Lichter, D. T. and Brown, D. L. (2011) Rural America in an urban society: changing spatial and social boundaries, *Annual Review of Sociology*, 37: 565-592.
- Lichter, D. T. and Ziliak, J. P. (2017) The rural-urban interface: new patterns of spatial interdependence and inequality in America, *Annals of the American Academy of Political and Social Science*, 672: 6-25.
- Loudiyi, S. (2010) When rural-urban fringes arise as differentiated place: the socio-economic restructuring of Volvic Sources et Volcans, France, in Halseth, G., Markey, S. and Bruce, D. (eds) *The Next Rural Economies*, Wallingford: CABI, pp 193-206
- Lynch, K. (2005) *Rural-Urban Interaction in the Developing World*, London: Routledge.
- MacGregor-Fors, I. (2011) Misconceptions or misunderstandings? On the standardization of basic terms and definitions in urban ecology, *Landscape and Urban Planning*, 100: 347-349.
- Marsden, T., Murdoch, J., Lowe, P., Munton, R. and Flynn, A. (1993) *Constructing the Countryside*, London: UCL Press.
- Martin, W. T. (1953) *The Rural-Urban Fringe: A Study of Adjustment to Residence Location*, Eugene: University of Oregon Press.
- Marzluff, J. M., Bowman, R., and Donnelly, R. (2001) A historical perspective on urban bird research: trends, terms, and approaches, in Marzluff, J. M., Bowman R., and Donnelly, R. (eds) *Avian Conservation and Ecology in an Urbanizing World*, Boston: Kluwer Academic, pp 1-17.
- Massey, D. (2005) *For Space*, London: Sage.
- Massey, D. (2007) *World City*, Cambridge: Polity.
- Masuda, J. R. and Garvin, T. (2008) Whose heartland? The politics of place in a rural-urban interface, *Journal of Rural Studies*, 24: 112-123.
- Mathieu, N. (1990) La notion de rural et les rapports ville-campagne en France: des années cinquante aux années quatre-vingts, *Economie Rurale*, 197, 35-40.
- Matti-Gallice, C., Collet, C. (2003) Contribution of remote sensing to the definition of an indicator for the analysis of periurban dynamics, 2nd GRSS/ISPRS Joint Workshop on Data Fusion and Remote Sensing over Urban Areas, pp 182-185.
- Mayer, H., Habersetzer, A. and Meili, R. (2016) Rural-urban linkages and sustainable regional development: the role of entrepreneurs in linking peripheries and centers, *Sustainability*, 8: #745.
- McCann, E. and Ward, K. (2010) Relationality/territoriality: toward a conceptualization of cities in the world, *Geoforum*, 41: 175-184.
- Medvedev, A. (2017) Counter processes: rural shrinkage and expansion of second homes in Central Russia, paper presented to the Warsaw Regional Forum, October 2017.

- Meligrana, J. (2007) Testing the elastic-cities concept within a nonmetropolitan environment: evidence from British Columbia, Canada, 1971 to 2001, *Environment and Planning A*, 39: 700-727.
- Merriman, P., Jones, M., Olsson, G., Sheppard, E., Thrift, N. and Tuan, Y-F. (2012) Space and spatiality in theory, *Dialogues in Human Geography*, 2: 3-22.
- Messely, L., Rogge, E., and Dessein, J. (2013) Using the rural web in dialogue with regional stakeholders, *Journal of Rural Studies*, 32: 400-412.
- Messely, L., Schuermans, N., Dessein, J. and Rogge, E. (2014) No region without individual catalysts? Exploring region formation processes in Flanders (Belgium), *European Urban and Regional Studies*, 21: 318-330.
- Messely, L., Dessein, J. and Rogge, E. (2015) Behind the scenes of place branding: unravelling the selective nature of regional branding, *Tijdschrift voor Economische en Sociale Geografie*, 106: 291-306.
- Milbourne, P. and Kitchen, L. (2014) Rural mobilities: connecting movement and fixity in rural places, *Journal of Rural Studies*, 34: 326-336.
- Mol, A. and Law, J. (1994) Regions, networks and fluids: anaemia and social topology, *Social Studies of Science*, 24: 641-671.
- Mormont, M. (1987) The emergence of rural struggles and their ideological effects, *International Journal of Urban and Regional Research*, 7: 559-575.
- Mormont, M. (1990) Who is rural? Or, how to be rural. Towards a sociology of the rural, in Marsden, T., Lowe, P. and Whatmore, S. (eds) *Rural Restructuring: Global Processes and their Responses*, London: David Fulton, pp 21-44.
- Morrill, R. (1992) Population redistribution within metropolitan regions in the 1980s: core, satellite and exurban growth, *Growth and Change*, 23: 277-293.
- Moseley, M. (1980) Rural development and in relevance to the inner city debate, *Inner Cities Working Party Paper*, London: Social Science Research Council.
- Muilu, T. and Rusanen, J. (2004) Rural definitions and short-term dynamics in rural areas of Finland in 1989-97, *Environment and Planning A*, 36: 1499-1516.
- Muilu, T., Kotavaara, N., Hintsala, H. and Puska, E-M (2017) Maaseutu-kaupunki-vuorovaikutus tutkimuskohteena Suomessa vuosina 1990-2013 [Rural-urban interaction as a research object in Finland 1990-2013], *Keskeneräinen käsikirjoitus* (unfinished manuscript).
- Murdoch, J. (1997) Towards a geography of heterogeneous associations, *Progress in Human Geography*, 21: 321-337.
- Murdoch, J. (2000) Networks – a new paradigm of rural development? *Journal of Rural Studies*, 16: 407-419.
- Murdoch, J. (2003) Co-constructing the countryside: hybrid networks and the extensive self, in Cloke, P. (ed.) *Country Visions*, London: Pearson, pp 263-282.
- Murdoch, J. (2006) Networking rurality: emergent complexity in the countryside, in Cloke, P., Marsden, T. and Mooney, P., *Handbook of Rural Studies*, London: Sage, pp 171-184.
- Murdoch, J. and Lowe, P. (2003) The preservationist paradox: modernism, environmentalism and the politics of spatial division, *Transactions of the Institute of British Geographers*, 28: 318-332.
- Murdoch, J. and Marsden, T. (1994) *Reconstituting Rurality*, London: UCL Press.
- Murdoch, J. and Marsden, T. (1995) The spatialization of politics: local and national actor-spaces in environmental conflict, *Transactions of the Institute of British Geographers*, 20: 368-380.
- Murdoch, J. and Pratt, A. (1993) Rural studies: modernism, postmodernism and the 'post-rural', *Journal of Rural Studies*, 9: 411-427.
- Murgante, B., Casas, G. L. and Danese, M. (2008) The periurban city: geo-statistical methods for its definition, in Coors, V., Rumor, M., Fendel, E. and Zlatanova, S. (eds) *Urban and Regional Data Management*, Boca Raton, FL: CRC Press, pp 473-483.
- Nadin, V. (2017) The state of spatial planning systems in Europe and their capacity to meet the challenges of intense urban and regional flows, paper presented to the Warsaw Regional Forum, October 2017.

- Nechyba, T. J., and Walsh, R. P. (2004) Urban sprawl, *Journal of Economic Perspectives*, 18: 177–200.
- Nelson, A. C. (1992) Characterizing exurbia, *Journal of Planning Literature*, 6: 350-368.
- Newby, H. (1986) Locality and rurality: the restructuring of rural social relations, *Regional Studies*, 20, 209-215.
- Newby, H., Bell, C., Rose, D. and Saunders, P. (1978) *Property, Paternalism and Power*, London: Hutchinson.
- Nicot, B-H (1995) La périurbanisation dans les zones de peuplement industriel et urbain, SIRIUS Papier 95-36, Paris: Université de Paris XII.
- Nielsen, T. A. S. and Hovgesen, H. H. (2008) Exploratory mapping of commuting flows in England and Wales, *Journal of Transport Geography*, 16: 90-99.
- Nikodemus, O., Bell, S., Grīne, I., Liepiņš, I. (2005) The impact of economic, social and political factors on the landscape structure of the Vidzeme Uplands in Latvia, *Landscape and Urban Planning*, 70: 57-67.
- Noguera, J. and Freshwater, D. (2016) Rural-urban in a peri-urban context, in Shucksmith, M. and Brown, D. L. (eds) *Routledge International Handbook of Rural Studies*, Abingdon: Routledge, pp 133-142.
- Novotný, L., Hruška, V., Egedy, T. and Mazur, M. (2015) Defining rural areas of Visegrad countries, *Studia Obszarów Wiejskich*, 39: 21-33
- Novotný, L., Mazur, M. and Egedy, T. (2015) Definition and delimitation of peripheries of Visegrad countries, *Studia Obszarów Wiejskich*, 39: 35-48.
- O'Brien, O. (2015) The City of London commute, *Suprageography blog*, 15 July 2015, available at: <http://oobrien.com/2015/07/the-city-of-london-commute/>
- Obersteg, A., Knieling, J. and Jacunak-Suda, M. (2013) Urban-rural partnerships in metropolitan areas (and beyond), paper presented to Regional Studies Association Winter Conference 2013, slides available at: [http://www.regionalstudies.org/uploads/Urban-Rural_Partnerships_in_Metropolitan_Areas_\(and_beyond\).pdf](http://www.regionalstudies.org/uploads/Urban-Rural_Partnerships_in_Metropolitan_Areas_(and_beyond).pdf)
- Ocana-Riola, R., and Sanchez-Cantalejo, C. (2005) Rurality index for small areas in Spain, *Social Indicators Research*, 73: 247-266.
- OECD (2011) *OECD Rural Policy Reviews: England, United Kingdom*. Paris: OECD.
- Ogdul, H. G. (2010) Urban and rural definitions in regional context: a case study on Turkey, *European Planning Studies*, 18: 1519-1541.
- Oliva, J. (2010) Rural melting-pots, mobilities and fragilities: reflections on the Spanish case, *Sociologia Ruralis*, 50: 277-295.
- Pagliacci, F. (2017) Measuring EU urban-rural continuum through fuzzy logic, *Tijdschrift voor Economische en Sociale Geografie*, 108: 157-174.
- Pahl, R. (1965) *Urbs in Rure*. London: Weidenfeld and Nicolson.
- Pahl, R. (1966) The rural-urban continuum, *Sociologia Ruralis*, 6: 299-329.
- Parain, C. (1970) Contribution à une problématique de la communauté villageoise dans le domaine européen, *L'Ethnographie*, 64: 34-60.
- Partridge, M. and Rickman, D. (2008) Distance from urban agglomeration economies and rural poverty, *Journal of Regional Science*, 48: 285-310.
- Partridge, M., Ali, M. D. K., and Olfert, R. (2010) Rural-to-urban commuting: three degrees of integration, *Growth and Change*, 41: 303-335.
- Pascale, A. (2009) Coi concetti di urbano e rurale non si riscopre il senso del luogo, *Agriregionieuropa*, 12 (45), 16 June 2009.
- Patel, D. I. (1980) *Exurbs: Urban Residential Developments in the Countryside*, Washington, DC: University Press of America.
- Paulgaard G. (2008) Re-centering Periphery. Negotiating Identities in Time and Space, in Granås, B., Bærenholdt J. O. (eds.), *Mobility and Place*. Aldershot: Ashgate.

- Pemberton, S. and Shaw, D. (2012) New forms of sub-regional governance and implications for rural areas: Evidence from England, *Planning Practice and Research*, 27: 441-458.
- Pēneze, Z., Nikodemous, O., Grīne, I., Rasa, I. and Bell, S. (2004) Local changes in the landscape structure of Kurzeme during the 20th century, *Folia Geographica*, 12: 56-64.
- Perlin, R., Kučerová, S. and Kučera, Z. (2010) Typologie venkovského prostoru Česka, *Geografie*, 115: 161-187.
- Pfeffer, M. and Wagenet, L. (2003) Communities of interest and the negotiation of watershed management, in Wright Morton, L. and Brown, S. (eds) *Pathways for Getting to Better Water Quality: The Citizen Effect*, New York: Springer, pp 109-119.
- Philo, C. (1992) Neglected rural geographies: a review, *Journal of Rural Studies*, 8: 193-207.
- Pickett, S. and Cadenasso, M. (2002) The ecosystem as a multidimensional concept: meaning, model and metaphor, *Ecosystems*, 5: 1-10.
- Pierce, J., Martin, D. G. and Murphy, J. T. (2010) Relational place-making: the networked politics of place, *Transactions of the Institute of British Geographers*, 36: 54-70.
- Pogačnik, A., Sitar, M., Lavrač, I., Kobal, J., Peterlin, M., Zavodnik Lamovšek, A., Drobne, S., Žaucer, T., Konjar, M., Trobec, B., Soss, K., and Pichler-Milanović, N. (2010) Analiza razvojnih virov in scenarijev za modeliranje funkcionalnih regij [Analysis of development potential and modelling of functional regions in Slovenia], URN:NBN:SI:DOC-9SOJIVV3 available from <http://www.dlib.si>.
- Pouille, F. and Gorgeu, Y. (1997) *Essai sur l'urbanité rurale* [Essay on Rural Urbanity], Paris: Syros.
- Powe, N. and Shaw, T. (2004) Exploring the current and future role of market towns in servicing their hinterlands: a case study of Alnwick in the North East of England, *Journal of Rural Studies*, 20: 405-418.
- Powe, N., Hart, T. and Shaw, T. (2007) *Market Towns: Roles, Challenges and Prospects*. Abingdon: Routledge.
- Prieto-Lara, E. and Ocana-Riola, R. (2010) Updating rurality index for small areas in Spain, *Social Indicators Research*, 95: 267-280.
- Pritchard, S. B. (2017) The trouble with darkness: NASA's Suomi satellite images of Earth at night, *Environmental History*, 22: 312-330.
- Pryor, R. J. (1968) Defining the rural-urban fringe, *Social Forces*, 47, 202-215.
- Puig, S. H. (2016) Peri-urban areas: a strategic space of opportunity, *Biblio 3W-Barcelona*, 21, article 160.
- Rannikko, P. (2009) Kylä kaupungin laidaksi: autoetnografinen tutkimus paallisyhteisöjen ja identiteettien liikeistä [From the village to the edge of the city: an auto-ethnographic study of movements of local communities and identities], *Maaseudun Uusi Aika*, 1.
- Redfield, R. (1941) *The Folk Cultures of Yucatan*, Chicago: University of Chicago Press.
- Rees, W. (1992) Ecological footprints and carrying capacity: what urban economics leaves out, *Environment and Urbanization*, 4: 121-130.
- Rees, W. and Wachernagel, M. (1995) *Our Ecological Footprint: Reducing Human Impact on the Earth*, Gabriola Island: New Society Publishers.
- Remoundou, K. and Gkartzios, M. (2017) Greek representations of the 'rural', the 'city' and the 'province' in times of crisis, paper presented to the TransAtlantic Rural Research Network meeting, Aberystwyth, May-June 2017.
- Repp, A., et al (2012) Urban-rurale verflechtungen: analytische zugänge und Governance-Diskurs [Urban-rural linkages: analytic access and governance discourse], Münchenberg: Leibniz Zentrum für Agrarlandforschung.
- Rodríguez-Pose, A. (2008) The rise of the 'city-region' concept and its development policy implications, *European Planning Studies*, 16: 1025-1046.
- Rosenqvist, O. (2002) "Maaseudun" ja "kaupungin" rakentuminen Tilastokeskuksen taajamamäärittelyyn perustuvassa aluekehikossa [The construction of 'rural' and 'city' in a regional framework based on the statistical classification of Statistics Finland], *Terra*, 114: 3-12.
- Rostow, W. W. (1990) *The Stages of Economic Growth: A Non-Communist Manifesto*, Cambridge: Cambridge University Press.
- Rozīte, M. and Priedāja-Klepere, L. (2004) The importance of Latvia's cities in tourism, *Folia Geographica*, 12: 74-83.

- Rudy, A. P. (2005) Imperial contradictions: is the Valley a watershed, region or cyborg? *Journal of Rural Studies*, 21: 19-39.
- Rusk, D. (1993) *Cities Without Suburbs*, Washington, DC: Woodrow Wilson Center Press.
- Saartenoja, A. (2004) Kaupungin ja maaseudun vuorovaikutus alueellisessa kehittämiss politiikassa [Urban-rural interaction in regional development policy], Turun Yliopiston Julkaisuja C124.
- Schaeffer, P. V., Kahsai, M. S. and Jackson, R. W. (2013) Beyond the rural-urban dichotomy: essay in honor of Professor A. M. Isserman, *International Regional Science Review*, 36: 81-96.
- Serra, M. and Pinho, P. (2011) Dynamics of periurban spatial structures: investigating differentiated patterns of change on Oporto's urban fringe, *Environment and Planning B: Planning and Design*, 38: 359-382.
- Sharma-Wallace, L. (2016) Toward an environmental justice of the rural-urban interface, *Geoforum*, 77: 174-177.
- Sharp, J. and Clark, J. K. (2008) Between the country and the concrete: rediscovering the rural-urban fringe, *City and Community*, 7: 61-79.
- Shucksmith, M. (2008) New Labour's countryside in international perspective, in Woods, M. (ed) *New Labour's Countryside: Rural Policy in Britain since 1997*, Bristol: Policy Press, pp 59-78.
- Schulz, N (2007) The direct material inputs into Singapore's development, *Journal of Industrial Ecology*, 11: 117-131.
- Short, B. (2006) Idyllic ruralities, in Cloke, P., Marsden, T. and Mooney, P. (eds) *Handbook of Rural Studies*, London: Sage, pp 149-160.
- Short, C., Phelps, L., Henehan, D., Staddon, C., Wells, S. and Turvill, J. (2014) *Cotswold Catchment Payments for Ecosystem Services Pilot: Catchment Based Approach Collaborative Project Demonstrating the Integrated Local Delivery Framework*, Defra Project Report NE0144, Gloucester: CCRI.
- Short, J. R. (1991) *Imagined Country*, London: Routledge.
- Šķiņķis, P. and Stankeviča, V. (1999) Latvijas pilsētu sociāli ģeogrāfiskās atšķirības [Social structural differences of urban areas in Latvia], *Folia Geographica*, 7: 94-115.
- Smith, N. (1987) Dangers of the empirical turn: some comments on the CURS initiative, *Antipode*, 19: 59-68.
- Sotte, F., Esposti, R. and Giachini, D. (2012) The evolution of rurality in the experience of the Third Italy, Paper presented to Workshop on European Governance and the Problems of Peripheral Countries, Ancona: Università Politecnica delle Marche.
- Spectorsky, A. C. (1955) *The Exurbanites*. Philadelphia: Lippincott.
- Sutton, P. C., Goetz, A., Fildes, S., Forster, C. and Ghosh, T. (2010) Darkness on the edge of town: mapping urban and peri-urban Australia using nighttime satellite imagery, *Professional Geographer*, 62: 119-133.
- Taylor, L. (2011) No boundaries: exurbia and the study of contemporary urban dispersion, *Geojournal*, 76: 323-339.
- Theobald, D. M. (2001) Land-use dynamics beyond the American urban fringe, *Geographical Review*, 91: 544-565.
- Thrift, N. (1983) On the determination of social action in space and time, *Environment and Planning D: Society and Space*, 1: 23-57.
- Tisenkopfs, T., Šūmane, S., Kunda, I., Pilvere, I., Zēverte Rivža, S. and Stokmane, I. (2015) Latvijas mazo saimniecību dzīvotspēja [Resilience of small farms in Latvia], RURAGRI ERA-NET Projekts, Eiropas Komisijas 7. letvara programma, SIA Jelgavas Tipogrāfija.
- Tönnies, F. (1957) *Community and Society*, Mineola, NY: Dover Publications.
- Tötzer, T. (2008) Relationships between urban-periurban-rural regions: First findings from the EU project PLUREL, <http://citeseerx.ist.psu.edu>
- Turok, I. (2009) Limits to the mega-city-region: conflicting local and regional needs, *Regional Studies*, 43: 845-862.
- Urbain, J. (2002) *Paradis Verts: Désirs de campagne et passions résidentielles*, Paris: Payot.
- Van Leeuwen, E. (2010) *Urban-Rural Interactions: Towns as Focus Points in Rural Development*. Dordrecht: Springer.
- Velayutham, S. and Wise, A. (2005) Moral economies of a translocal village: obligation and shame among South Indian transnational migrants, *Global Networks*, 5: 27-47.

- Wachernagel, M. (1998) The ecological footprint of Santiago de Chile, *Local Environment*, 3: 7-25.
- Walford, N. (2010) Connecting rural and urban places: enduring migration between small areas in England and Wales, in Halseth, G., Markey, S. and Bruce, D. (eds) *The Next Rural Economies*, Wallingford: CABI, pp 59-74.
- Walker, P. and Fortmann, L. (2003) Whose landscape? A political ecology of the 'exurban' Sierra, *Cultural Geographies*, 10: 469-491.
- Ward, N. (2006) Rural development and the economies of rural areas, in Midgley, J. (ed) *A New Rural Agenda*, Newcastle: IPPR North, pp 46-67.
- Ward, N. and McNicholas, K. (1998) Reconfiguring rural development in the UK: Objective 5b and the new rural governance, *Journal of Rural Studies*, 14: 27-40.
- Wellbrock, W., Roep, D. and Wiskerke, J. C. (2012) An integrated perspective on rural regional learning, *European Countryside*, 4: 1-15.
- Wilson, A. (1992) *The Culture of Nature*, Cambridge, MA: Blackwell.
- Wilson, G., Mose, I., Robinson, G. and Schmied, D. (2009) British and German Rural Geography in Perspective, *Rural*, 3: 1-14.
- Williams, R. (1975) *The Country and The City*. St Albans: Paladin.
- Wirth, L. (1938) Urbanism as a way of life, *American Journal of Sociology*, 44: 1-24.
- Woods, M. (2005) *Rural Geography*, London: Sage.
- Woods, M. (2007) Engaging the global countryside: globalization, hybridity and the reconstitution of rural place, *Progress in Human Geography*, 31: 485-507.
- Woods, M. (2009) Rural geography: blurring boundaries and making connections, *Progress in Human Geography*, 33: 849-858.
- Woods, M. (2011a) *Rural*, Abingdon: Routledge.
- Woods, M. (2011b) Market towns in rural Wales: a differentiated geography, in Milbourne, P. (ed.) *Rural Wales in the Twenty-First Century*, Cardiff: University of Wales Press, pp 149-168.
- Woods, M. (2013) Rural development, globalization and European regional policy: perspective from the DERREG project, *Geographia Polonica*, 86: 99-110.
- Wu, J., Weber, B. and Partridge, M. (2016) Rural-urban interdependence: a framework integrating regional, urban and environmental economic insights, *American Journal of Agricultural Economics*, 99: 464-480.
- Zaleskiene, E. and Grazuleviciute-Vileniske, I. (2013) Rural landscape classification: case of Lithuania, in Atkociuniene, V. (ed.) *Rural Development 2013: Proceedings, Volume 6, Book 1*, pp 463-467.
- Zárate, A. (1984) *El mosaico urbano: organización interna y vida en las ciudades*, Madrid: Editorial Cincel.
- Zhou, Y., Smith, S. J., Zhao, K., Imhoff, M., Thomson, A., Bond-Lamberty, B., Asrar, G., Zhang, X., He, Chunyang, and Elvidge, C. (2015) A global map of urban extent from nightlights, *Environmental Research Letters*, 10, 054011.
- Zimmerbauer, K. and Paasi, A. (2013) When old and new regionalism collide: deinstitutionalization of regions and resistance identity in municipality amalgamations, *Journal of Rural Studies*, 30: 31-40.

8 Appendix: Glossary of Key Terms

Absolute Space – A concept of space that considers that space can be divided into discrete territories with firm boundaries (see also relational space; relative space).

Central Place Theory – A model of the size, function and distribution of settlements around a central place, or dominant city, based on assumed rational behaviour by consumers over the distance they will travel to buy goods and access services. Developed in two variations by German economic geographers Walter Christaller and August Losch.

City-region – A region encompassing both urban and rural areas focused on a central city, which exerts economic and political influence over the region. The term has been employed as a synonym for an urban field, but more recently has acquired meaning as a concept in spatial planning that emphasizes the relational connections between a city and surrounding districts, and as a unit for new inter-municipal forms of governance.

Commuting field – The area from which people will travel on a daily basis to work in a central city or town, also referred to as labour market area or a travel-to-work area.

Compact city – A Dutch spatial planning concept that aimed to restrict the spatial expansion of cities and to separate rural and urban spaces and land uses.

Counterurbanization (or counterurbanisation) – Technically a shift in the overall balance of the population of a nation or region between urban and rural areas, with an increased proportion living in rural areas, but also used to refer to migration from rural areas to urban areas (see also urbanization)

Discourse – A collection of ideas and representations that articulate a way of seeing and understanding the world. As a social construct, rurality is defined by the ideas articulated in discourses. Indeed, there are multiple different discourses of rurality, including policy discourses that shape the governance of the countryside; media discourses that include the representation of rural life and landscapes in film, television, news reports etc; academic discourses that are formed by social science research and theories; and lay discourses through which rural residents make sense of everyday life. Differences between discourses can stimulate rural conflicts (see also social constructivism).

Ecosystem services – The functions performed by environmental features such as forests, rivers, peat bogs and farmland that support the operation of larger ecosystems, but which are often intangible and which have conventionally not been part of an economic transaction. Examples include carbon sequestration, water purification and flood alleviation. In the last two decades, efforts have been made to place a value on these contributions, and to introduce payment for ecosystem services schemes to reward land managers for practices that maintain and enhance these functions. Payments for ecosystem services have been presented by some writers as representing a new rural-urban compact.

Elastic city – A concept developed in North America to describe a process by which cities respond to growth and increased need for land and resources by expanding their administrative boundaries and incorporating neighbouring periurban and rural districts.

Exurban – A descriptive term applied to areas that are characterised by urban architecture or social or economic forms within rural settings, also referred to as exurbia. In some usages, these are identified as areas

close to major urban centres that are subject to urban investment and migration in a form of extended urbanization, in other usages 'exurban' is employed to describe pockets of urban-like development in remoter rural areas, such as districts close to national parks that attract urban migrants for recreational purposes. Exurbanization (or exurbanisation) refers to the development of such areas. The concept is more commonly used in North America than in Europe.

Fordism – A form of economic organization based on mass production and mass consumption, supported by government intervention, including in Europe the safety-net of the welfare state. Economists and economic geographers and sociologists argue that since the 1980s there has been a post-Fordist turn, which economies restructured to place more emphasis on flexibility, niche specialisation and just-in-time production. In rural contexts the move from productivist agriculture to a more diversified economy has sometimes been characterised as a shift from Fordism to post-Fordism.

Functional segmentation – A planning approach, notably in the Netherlands, that separates different types of land use – e.g. for residential, industrial, recreational and conservation purposes – into different zones.

Fuzzy boundaries – An idea in spatial planning that considers regions, localities or territories as having indefinite or porous boundaries rather than firm borders (see also relative space; soft spaces; spatial planning).

Gemeinschaft – 'Community', a term used by Ferdinand Tönnies to describe an integrated and stratified social structure based on personal ties that he associated with rural life (see also Gemeinschaft).

Georeferenced data – Digital data that is coded with an indication of geographical location, and which therefore can be used to map distributions within a GIS analysis. Georeferenced data may come from a number of sources, including satellite observations, but also locational data from mobile devices and computers (see also GIS).

Gesellschaft – 'Society', a term used by Ferdinand Tönnies to describe a social structure of dynamic impersonal ties that he associated with urban life (see also Gemeinschaft).

GIS – Geographical information systems, the use of digital data from a range of sources to produce maps and other visualizations of spatial patterns.

Greenbelt – A defined area around an urban conurbation, particularly in Britain, where new building development is severely restricted in order to preserve the rural appearance of the land and to constrain the expansion of urban build-up areas.

Hybridity – The mixing together of different elements to produce new formations. In relational spatial theory, places are referred to as hybrid in that they are comprised by heterogeneous components, including both human and non-human components (i.e. local residents, but also plants and animals, or buildings and machinery), and both social and natural components. Hybridity might also be used to describe the mixing of urban and rural characteristics in a place (see also relational spatial theory).

Locality – A defined sub-national spatial unit that is an area of social, economic, cultural and political life, and which can be used as a unit of analysis in geographical research. A locality may be a city, a city-region, a county, a local government district, a small town, a village, or another geographical unit. Jones and Woods (2013) argue that a locality should have material coherence (i.e. be a single labour market or commuting field, or a local government area) and imagined coherence (i.e. that people who live there identify with it).

Material flow analysis – A method for mapping and quantifying the flow and storage of materials (including water, energy resources, carbon, waste etc) through a defined system, thus revealing the bio-physical properties of human systems. Material flow analysis has been applied by urban ecologists to map, quantify and assess the material inputs and outputs of a city and the relationships that these represent between cities and other regions (see also urban metabolism).

NUTS regions - The standard geographical regions used by the European Union for statistical monitoring and policy delivery, organized in a scalar hierarchy, with NUTS 1 regions divided into NUTS 2 regions, which are divided into NUTS 3 regions, which are divided into Local Administrative Units (LAUs).

Periurban – Description of geographical areas immediately encircling towns or cities, but beyond the edge of the built-up urban area, normally characterised by a mix of urban and rural land uses and social and economic forms. Periurbanization (or periurbanisation) refers to processes of population growth in periurban areas and the relocation of industry, retail or other services to periurban locations (see also rural-urban fringe; exurban; rurban).

Planetary urbanization – The assertion that urban society and urban ways of life have pervaded all parts of the world, such that there are no longer characteristically ‘rural’ societies, and as such that all social, economic and cultural phenomena can be analysed through urban theory.

Political-economic theory – Approaches in social science research that emphasize the economic and political structures that underpin capitalism, and which tend to look for explanations for observed phenomena in the functioning of these structures, associated practices such as class struggle, and supporting state policies. Political-economic analyses as applied in social science tend to be informed by neo-Marxist theory.

Relational space – A concept of space that rejects the Cartesian perspective of space as a flat two-dimensional plane and instead considers that space can be twisted in different ways through social, economic and political relations, such that points in space can be close to each other without having geographical proximity. Cyberspace is sometimes cited as an example of relational space (see also absolute space; relative space; relational spatial theory).

Relational spatial theory – An approach within human geography that emphasizes the interconnections between places, and sees places (or localities, or regions) not as discrete territories but as nodes or entanglements of wider social, economic and political relations, as well as heterogeneous human and non-human components (see also hybridity; relational space).

Relative space – A concept of space that emphasizes the inter-connection and inter-dependency of different points in space and the blurring of boundaries between different places or localities (see also absolute space; relational space).

Remotely-sensed data – Data sourced from satellite monitoring or aerial observation and employed in GIS analysis and mapping (see GIS).

Ruralization (or ruralisation) – A term occasionally used to refer to either the incorporation of rural cultural references (e.g. clothing, 4-wheel-drive cars) or practices (e.g. urban agriculture) into urban lifestyles, or the relocation of urban lifestyles and cultural practices to rural locations.

Rural-urban continuum – A model describing the gradual transition of social formations and ways of life over space between the two poles of a truly rural society and a truly urban society. The model was popularised in

mid 20th century rural sociology as a rejection of sharp delimitation of rural and urban societies, but was itself critiqued by Ray Pahl and others as too simplistic.

Rural-urban fringe (or **urban fringe**) – The transition zone between the continuous built-up area of the city and the countryside, usually characterised by a mix of urban and rural land uses and urban and rural social and economic forms, and by the location of infrastructure and services supporting the city that are considered unsuitable for urban sites. Some usages distinguish between the ‘inner fringe’ and the ‘outer fringe’, with the former referring to suburban areas immediately adjacent to the edge of the city (see also periurban; rural-urban interface).

Rural-urban gradient – see urban-rural gradient.

Rural-urban interface – The zone of interaction between the city and the countryside, or between rural and urban economic or social forms. It is sometimes used specifically to refer to the geographical area at the margin of cities (see also the rural-urban fringe), but may be applied over a wider area where interactions between rural and urban forms take place.

Rurban – A descriptive term used to refer to places or practices that combine rural and urban elements or characteristics. It is sometimes applied to periurban districts or to the rural-urban fringe, but may also be used in a less geographically specific way. The term rurbanization (or rurbanisation) is sometimes used to refer to the mixing of rural and urban forms, or to the extension of urban cultural forms or ways of life into rural areas (see also periurban, rural-urban fringe, urbanization).

Social constructivism – The idea that objects and entities do not have any inherent identity or meaning, but rather given identities and meanings through their imagination, description and representation in everyday language, art, media and policy. From this perspective, rurality is a social construct – in other words, rurality does not just exist in an objective, essential form, but rather place, people, objects and practices are described as rural through representation and as such are attributed with certain imagined qualities (see also discourse).

Soft spaces – An idea in spatial planning that captures areas of space that have some unifying feature, but which do not have hard boundaries and which may cross conventional administrative territories (see also fuzzy boundaries; relative space; spatial planning).

Spatial planning – An approach to planning that adopts an integrative perspective encompassing land use planning, infrastructure, economic development, service delivery and ecosystem management, paying particular attention to relationships and interactions across space. Spatial planning has been promoted through the European Spatial Development Perspective (ESDP).

Territorial development – Policies and strategies for economic development that focus on the integrated development of a defined territory, rather than, for example, a particular sector.

Urban field – The area of influence of a town or city, usually defined in terms of commuting patterns, public service and retail provision, and media consumption. Also referred to as the urban sphere of influence.

Urban fringe – see rural-urban fringe.

Urban metabolism – The idea that a city can be compared to an ecosystem as a complex system that requires a balance between material inputs and material outputs. (see also Material Flow Analysis).

Urban-rural gradient – A model describing the gradual transition between rural and urban places, usually based on land use or population density, similar to the rural-urban continuum, but more commonly used in economics and ecology.

Urbanization (or **urbanisation**) – Has several meanings: (i) the shift in the balance of the overall population of a nation or region between rural and urban areas; (ii) migration from rural to urban areas; (iii) the extension of urban built-up areas into rural areas; (iv) the adoption of urban lifestyles by people living in rural areas (see also counterurbanization).