
Mobilizing the regional eco-economy: evolving webs of agri-food and rural development in the UK

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Received on July 22, 2009; accepted on February 25, 2010

The paper traces the emergence of the regional eco-economy with reference to a new conceptual model called the *rural web*. These webs are embedded into the fabric of regional systems of production and consumption and provide a key driver for both rural development generally and eco-economic development more specifically. Relocalized agri-food networks are playing a key integrating role in mobilizing the web and the regional eco-economy more generally. The web concept is used to (i) assess the pathways and drivers of eco-economic initiatives, (ii) provide a way of embedding agri-food initiatives in their innate forms of multifunctionality with wider ecological goods and services and (iii) provide a valuable and multidimensional tool for comparative rural/regional analysis and pathways of eco-economic development.

Keywords: eco-economy, endogeneity, novelty, social capital, market governance, new institutional arrangements

JEL Classifications: Q01

Introduction

The burgeoning literature on the relocalization of agri-food in the past decade has demonstrated the emergence of alternative and re-embedded sets of production and consumption chains and networks (Cloke et al., 2006; Morgan et al., 2006). What is less understood or recognized are the ways in which these new chains and networks are interlinked and indeed provide a stimulus for distinctive and multifunctional forms of rural development associated with the rural and regional eco-economy. This paper assesses how the relocalization of agri-food plays an important integrative function in the wider and embedded development of rural and regional ‘webs’. With reference to two regional case studies—Devon

and Shetland, UK—the paper explores how these rural webs are ‘unfolding’ and how relocalized agri-food initiatives form a central part in mobilizing these distinctive eco-economic rural and regional development processes.

Regionalized rural development is grounded in and driven by complex sets of internally and externally generated interrelationships and interactions, which shape the relative attractiveness and competitiveness of rural spaces economically, socially, culturally and environmentally. This is what we have called the ‘unfolding rural web’ (van der Ploeg and Marsden, 2008), whereby both the density and the quality of interactions internally and externally of different rural spaces affect the pathways and velocity of rural development trajectories.

Rural development stems from combining a wide range of different and often reconfigured rural resources in new ways, as a result of which they flow into a set of new activities, interactions, transactions and networks. Synergy is created when these relationships start to mutually reinforce each other, especially when new town–countryside relations emerge that support and reproduce these newly emerging activities, relations and internal and external networks. In this sense, rural development cannot be seen in isolation from the wider regional context in which it occurs. It is thus an increasingly embedded and dynamic feature of regionally differentiated development.

An important emergent outcome of the operation of the rural web is now what we can call the rural and regional eco-economy. Rural regions are being called upon to deliver a wider and more diverse set of ecological goods and services, not least around a wider vector of food and fibre products (see Kitchen and Marsden, 2009). The emergence of new food webs in rural areas needs to be seen in this wider ecological/economic context. This is leading, not least, to the local and regional development of eco-economic competitive as well as collaborative relationships as part of web development.

Defining the eco-economy as part of web development

Drawing on various strands of literature, including ecological economics, ecological goods and services and ecological modernization, we can conceive of the eco-economy as an alternative and diverse spatial arena for the development of new production and consumption chains and networks. It consists of complex networks or webs of viable businesses and economic activities that utilize the varied and differentiated forms of ecological resources in more sustainable and ecologically efficient ways. Importantly, these do not result in a net depletion of resources but instead provide cumulative net benefits that add value to rural and regional spaces in both ecological and economic ways. In this sense, they perform the role of reversing the long-term ‘cost price squeeze’ in agriculture

and forestry, for instance, whereby local resources have been devalorized at the primary production end of conventional food chains. The rise of the eco-economy specifically recaptures value at the local and regional level by creating new ecologically based products and services, which then create market and consumption niches. In these ways, agriculture as well as other land-based activities becomes reintegrated into the wider rural and urban arena in new and innovative ways.

New production and consumption linkages are based on revised sets and combinations of social, natural and territorial capital (Ventura et al., 2008). In many rural regions, where there is an historical economic dependency on primary industries and raw natural resources (such as mining, timber, fisheries), core features of the eco-economy may be seen as multifunctional agriculture and forestry, together with other land-based and service enterprises that are more embedded in the local territory. Drawing on and adapting definition by Brown (2001), we can develop and postulate a more integrated and socially embedded definition of the eco-economy (Kitchen and Marsden, 2009, 294). This can be defined as follows:

The effective social management and reproduction of ecological resources (as combinations of natural, social, economic and territorial capital) in ways designed to mesh with and enhance the local and regional ecosystem rather than disrupting and destroying it. The eco-economy thus consists of cumulative and nested webs of viable businesses and economic activities that utilize the varied and differentiated forms of environmental resources of rural areas in sustainable ways. They do not result in a net depletion of resources but rather provide net and composite benefits and add value to the environment and the community.

This definition is conceptually distinguished from what in some policy and academic circles has been termed the bioeconomy. This contested arena tends to focus on the (largely corporate-controlled) production of biomass and biofuels,

together with other strands including biotechnology, genomics, chemical engineering and enzyme technology (see Juma and Konde, 2001). Rather than a local and regional value-adding phenomenon, the onset of the bioeconomy, which is also linked into industrial ecology (Anex, 2004; Wang, 2004), operates at global corporate economic levels (McMichael, 2009; Mol, 2007). Alternatively, postulating the rise of the eco-economy places an emphasis and question upon the recalibration and clustering of microeconomic behaviour and practices. It is argued here that when these are added together, or begin to agglomerate in specific regional spaces, they begin to potentially realign production–consumption chains and capture local and regional ecological and economic value both within and between rural and urban spaces.

It follows, as we shall see from our comparative analysis of two rural regions, that the emergence and evolution of the eco-economy is based on a necessary recasting of urban and rural relationships on the one hand and an equally necessary set of what we

might term social and ecological initial endowments on the other hand. This is where the following conceptual domains and dynamics of the rural web are critical to the emergence of the eco-economy (see Figure 1). So what are these key domains or building blocks of the web, and how do they begin to lead to the ‘take-off’ of the eco-economy in some places but not in others? By focussing upon a comparative analysis of local and regional food-related initiatives, these questions and postulates will be addressed in the following sections of the paper.¹

The exploring of the rural/regional web as a driver of the eco-economy

In order for the eco-economy to develop, it has to find the means to take hold and be embedded in different context-dependent rural and regional spaces. By definition, and as we shall see in the comparative analysis below, there is no such thing as a generic rural/regional web. It has to arise out

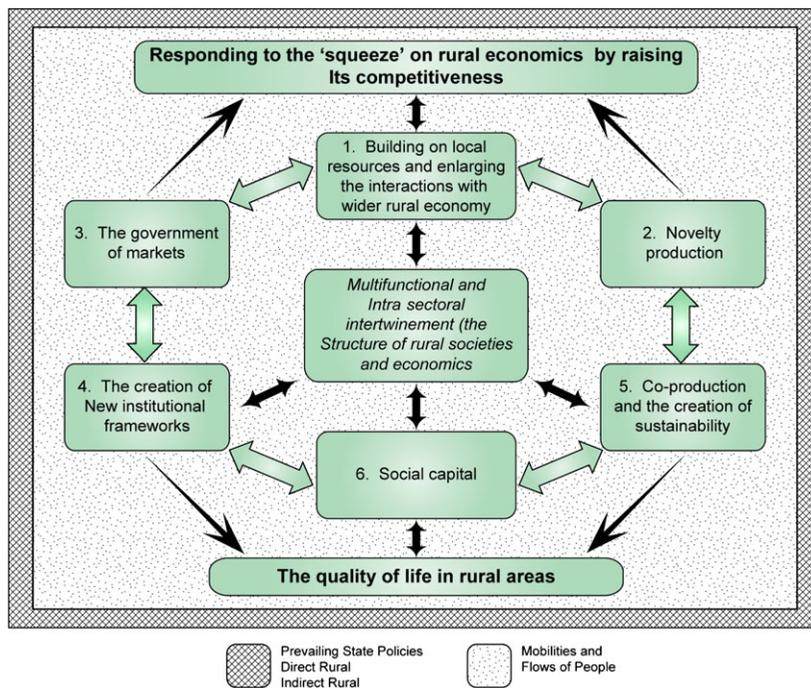


Figure 1. Conceptual model of the rural web.

of and draw its energy from local and regional eco-resources. We can outline the main features and building blocks in Figure 1 and describe their main characteristics in Table 1. We shall explore in the rest of this paper how rural webs are dynamic entities, being multidimensional, consisting of key conceptual building blocks, of which endogeneity, novelty production, sustainability, social capital, new institutional arrangements and the governance of markets are all key dimensions (Table 1). These building blocks are seen as being located in the dynamic (and some might argue increasingly uncertain) context of the responses to the economic squeeze on rural resources, especially conventional agricultural production. Moreover, as Figure 1 displays, the rural areas are subject to evolving

forms of state intervention (both direct and indirect) and uneven patterns of both transient and residential forms of demographic mobility. These macro factors set an uneven context for different web constellations to occur. For instance, some rural regions are net population growth zones (such as Devon), while others (such as Shetland) have long-standing problems of depopulation and peripherality. In Shetland, the state still plays a key role in shaping the eco-economy, whereas in Devon, it is much more driven by private networks.

These contextual factors have to be accommodated and shaped by the dynamic domains in the model. For instance, the differential role of the state and the uneven patterns of both tourism and residential mobility place both opportunities and constraints in developing the rural and regional eco-economy through web mobilization. The model thus accommodates what Castells (1998) distinguishes as both ‘spaces of flows’ and ‘spaces of places’, whereby both interact in place and where giving priority to spaces of flows can mean opening up the territory to the influence of global change (for example, volatilities in world market prices of resources, financial flows, migration patterns and state aids).

Moreover, the web can be understood as the relational system through which the human and the ecological components of a territory interact and intersect. It represents the amalgam of territorial capitals from which the eco-economy can then emerge in its various forms and assemblages. We will see below that relocalized food networks perform one significant role in lubricating and expanding the domains of the web with reference to its operation in two contrasting regions—Devon and Shetland.

In eco-ecological terms, the implied relations of the web are those that link the production of socio-ecological goods and services to the use of territorial resources, such as soils, landscapes, minerals, water catchments, plant and animal ecologies, geologies, etc. Each region thus holds different sets of what we may term ‘initial endowments’ of such ecological resources, many of which may have been hidden from view in past modernization phases. It is the social and economic challenge of the web to recreate and exploit these endowments in new ways, which

Table 1. *Six domains of rural development*

Endogeneity	The degree to which rural economies are (i) built upon local resources, (ii) organized according to local models of resource combination, and (iii) strengthened through the distribution and reinvestment of produced wealth within the local/regional constellation
Novelty	New insights, practices, artefacts and/or combinations (of resources, technological procedures, bodies of knowledge, etc.) that carry the promise that specific constellations function better
Social capital	‘[T]he norms and networks that enable people to act collectively’ (Woolcock and Narayan 2000), or more specifically, the ability of individuals, groups, organizations or institutions to engage in networks, cooperate and employ social relations for common purpose and benefit
Market governance	Institutional capacities to control and strengthen existing markets and/or to construct new ones
New institutional arrangements	New institutional constellations that solve coordination problems and support cooperation among rural actors
Sustainability	Territorially based development that redefines nature by re-emphasizing food production and agro-ecology and that reasserts the socio-environmental role of agriculture as a major agent in sustaining rural economies and cultures

re-enforce the overall eco-economy. We can thus see the web as a multidimensional and indeed multifunctional vehicle, which is essential for the development and sustainability of the regional eco-economy more generally. This has the effect of recasting traditional urban and rural relations as both production and consumption chains are themselves transformed (see Marsden, 2008).

As agri-food (as defined as both land-based agriculture and its supply routes) is usually a central provider of ecological resources in rural areas, the rural web can be considered as an active network of relations, which creates the conditions that support a more multifunctional agri-food base (Ventura et al., 2008). Ecological diversity and agri-food multifunctionality can then run in parallel in the eco-economy, and it is the function of the web to harness and embed these synergies. Rural areas clearly do not align themselves towards sustainability and multifunctionality in the same way or at the same speed. These uneven pathways, as we shall see below in the cases of Devon and Shetland, are strongly influenced by the presence of multifunctional farming activities and their spatially nested networks and markets.

We can postulate here that the concept of the web provides several heuristic functions. Through consolidating a large body of theoretical work (see van der Ploeg and Marsden, 2008), it first provides a way of assessing the significance of the emerging eco-economy. Second, it assists the understanding of the dynamic development of sustainable agri-food initiatives in ways that demonstrate their innate multifunctionality (Kanemasu et al., 2008; Ventura and Berti, 2008). In this sense, agri-food is not just to be seen as a basis for producing food commodities, *sensu stricto*, in the traditional sense. Rather, they hold far greater relational capacity in web development by stimulating both an infrastructural and an interactional basis for the development of a whole range of multifunctional goods and services, including agritourism, multiproduct development and ecological management. Third, as addressed in the conclusion, it also provides a new tool for comparative regional analysis, exposing differing rural and regional development

pathways as well as coping with their inherent diversity and context dependency.

Mobilizing the rural web: from post-productionism to rural development in Devon

Rural Devon in South-West England faces a number of distinctive development challenges. It is characterized by higher levels of self-employment, lower levels of employment, and lower-than-average earnings that are the fourth lowest nationwide (19% below the national average). Businesses are generally small in terms of both staffing and turnover, with lower-than-average growth expectations. Many are located in areas of particular deprivation. There is a prevalence of land-based businesses and a high proportion of these are in sectors that pay lower wages.

Adding to these constraints was the impact of 2001 Food and Mouth disease (FMD).² During the crisis, Devon suffered 173 confirmed cases and 4500 farms came under livestock movement restrictions. A total of 282,817 sheep and 72,433 cattle were slaughtered. This resulted in a 4% loss in agricultural labour between 2000 and 2002. However, despite serious effects on the rural economy, FMD also served as a catalyst for a broad shift in regional rural policy, producer orientation and consumer demand, resulting in a greater emphasis on regional sustainability with participatory community-led approaches. Indeed, FMD opened up a political space for their growth. This meant that issues of agriculture, food and the rural economy came to the fore in the activities of local strategic partnerships and that local authorities regained a degree of policy ground that had been lost.

The county has established itself as a leader in eco-economic (and relocalized) food networks, especially organic farming, short food supply chains and sustainable tourism. Some of these initiatives owe their emergence to the county's peripheral location, where new innovative ideas were allowed to grow and be tested, as in the case of organic 'box' schemes (that is, direct household delivery). Peripherality can be seen here as providing

a 'creative social space', an opportunity to pursue alternative ideas, new ecological synergies and practices. These often came from 'wilful individuals', whose initiatives were then supported by politicians and local authorities. Collective action and cooperation also played a supportive role in this process.

The combination of 'creative space' and innovative individuals, protected by political frameworks and social capital, has provided the seedbed for the growth of food-related initiatives that became Devon's key eco-ecological drivers. These include the following:

- *Local food*: In 2004, Devon was named the 'number one county' in terms of local food businesses and organic food businesses. Local food businesses, less than 50 of which existed in the past, have grown to 500 in the past 4–5 years, and there are 30 regular farmers markets, more than any other county in the UK. Devon has successfully established 'an ethos around local food'.
- *Organic food*: The first organic box scheme in England was started in the county in 1991. Today, the county has the highest number of certified organic operators (464 operators), and the highest concentration of land certified organic in the UK (over 30,000 hectares). The county's producers won a record 12 awards in the National 2006 organic food awards.
- *Sustainable/green tourism*: Devon's peripheral rural environment has provided a long-standing setting for tourism since the 19th century (Murdoch et al., 2003, 98). The emerging emphasis in recent years is sustainable/green tourism. Devon's pioneering status is conspicuous. South Hams District is the first area in England to introduce Green Tourism Business Awards Scheme (GTBS) accreditation in the early 1990s and has the highest concentration of GTBS award-winning businesses in the UK, including accommodation, attractions, cafes and activities. In the agricultural sector, there has been an increasing trend towards farm tourism.

Rural Devon is now characterized by clusters of eco-economic initiatives (for example, renewable energy promotion, nature and landscape conservation, leisure/recreational services and equine tourism). In addition to *deepening* activities to generate more value added (organic/local/artisanal food), farms have increasingly turned to *broadening* activities to pursue multifunctional rural enterprises. Farm tourism is a primary example. The highly valued environmental and historical assets of the farms provide a new connection and synergy between the county's two traditional sectors of tourism and farming. These have allowed farms to create new income and employment opportunities by effectively responding to the growing needs and expectations of urban consumers (for example, demands for recreational services, concern over food provenance and safety, and interest in sustainable and ethical food consumption).

The rural web configuration

Endogeneity

Endogeneity is defined as the *degree* to which local and regional rural economies are (i) built on local resources, (ii) organized according to local models of resource combination ... [and] (iii) strengthened through the distribution and reinvestment of the produced wealth within the local or regional constellation. Devon shows that this is a key theme that has critically shaped the county's rural development trajectory. It has underpinned the emergence of the two key rural drivers: local/organic food networks and sustainable tourism. These both imply endogeneity in that they are both directly dependent on the effective mobilization of the eco-economic assets of the territory but and operate with a clear and explicit purpose of fostering the autonomy of regional/local economies and communities. They ensure the reinvestment of the produced wealth generated within the local or regional constellation and thereby maximize its endogenous potential.

This is most evident in the 'ethos around local food'. Valorization of local food is driven by aspirations to deliver not only immediate economic

benefits to individual businesses and, perhaps more importantly, promote wider economic and sociocultural benefits to local/regional communities. A prominent local food initiative, *Devon Food Links* (an EU-funded and Devon County Council (DCC)-coordinated initiative), typically states its aim as developing markets for local food and drink producers ‘to benefit the local economy’ (*Devon Food Links* 2008). The sociocultural as well as economic dimensions of the territorial character of food are highlighted by RAFAEL (Renaissance of Atlantic Food Authenticity and Economic Links), an EU programme coordinated by DCC. This initiative specifically promotes ‘authentic food’, which it defines as “food that is, locally grown and sold, and is linked to the natural, cultural and historical assets of the region”, with an explicit acknowledgement of the sociocultural value of local food. Here, local food implies not simply food that is produced/procured/consumed locally but food that is *embedded* in the locale (grounded in locally available resources, knowledge, skills, traditions, identity, sense of place, etc).³

The vision of endogenous development also figures prominently in farm tourism. *Devon Farms* actively connects tourism with farms and their physical assets, and with their sociocultural heritage and typical food/products of the areas, in an explicit attempt to draw together territorial assets to generate economic value added at both the farm and the community levels.

It is notable that endogeneity does not preclude all that is not ‘local’ in origin: Exogenous resources may be translated and renewed in a way that enhances the autonomy of local/regional economies and communities. Transition Town Totnes (henceforth TTT) is a case in point. Despite its exogenous origin (*Transition Town* is a notion started by one individual, a newcomer to the town), local community members have embraced the vision in a process of open and inclusive dialogue and sensitized it to the specific environmental, economic and social needs and concerns of the local community. Hence, the initiative may be exogenous in origin, yet strongly endogenous in content.

Sustainability

Sustainability—understood as territorially based development that redefines nature by re-emphasizing food production and agro-ecology and that reasserts the socio-environmental role of agriculture as a major agent in sustaining rural economies and cultures—is another key domain in Devon’s eco-economic initiatives. In contrast to endogeneity, which tends to be a latent (yet powerful) driver, sustainability is an explicit theme running through much of the rural development discourse, encompassing many initiatives ranging from sustainable/green tourism to local food, organic farming and renewable energy.

It is linked to Devon’s rich natural and environmental endowments. With more than 50% of its land covered by environmental designations, the county has sufficient motivation to promote sustainable mobilization and management of these valuable assets, upon which most of its tourism and farming critically depend. Sustainable and regional food is an integral part of this sustainability emphasis.

Sustainability is also the central focus of renewable energy-related initiatives. While there is interest in energy crop production, Devon’s sustainable energy initiatives are predominantly focused on energy conservation and renewable energy promotion, as in the case of Devon Sustainable Energy Network (public–private partnership set-up in 2005). TTT is a particularly prominent example of a series of bottom-up initiatives emerging out of a vision of environmental sustainability.

Key activities, for instance, involve not only conservation and renewable energy projects but also local food promotion and economic localization epitomized by the much publicized Totnes Pound Scheme.⁴ Economic sustainability (that is economic autonomy of the local community) and sociocultural sustainability (that is celebration of local food, local identity and community cooperation) are seen to be intricately linked to environmental and ecological dimensions. Indeed, in terms of the web relations, there is a powerful *synergistic interrelation between sustainability and endogeneity*. The same may be said of many other initiatives

dedicated to local food, in which local food production/procurement/consumption is extolled for its environmental benefit (reduction of food miles) and equally for its economic, sociocultural and symbolic value (food as a symbol of the farming county). For instance, Devon Food Links stated aims range from encouraging “more sustainable food production and consumption” to supporting local businesses and developing “a unique sense of local identity through food and farming practices and their associated landscapes” (Devon Food Links 2008).

This is a notable eco-economic pathway given that the environmental sustainability cause in Devon has historically been pushed by ‘incomers’⁵ whose largely middle-class post-productivist agenda has at times conflicted with local farming and rural development interests concerned about the options and choices available to rural families for sustaining their livelihoods (Murdoch et al., 2003, 100). The emerging approach, which places sustainability as building upon endogenous development principles, points to a new rural development path. Here, sustainability in its multiple dimensions constitutes the central domain that mediates endogeneity as well as other web domains, such as market governance and social capital. While ‘local’ does not necessarily entail ‘sustainability’ or vice versa, the linkage between the two (that is, mutually reinforcing interrelation between endogeneity and sustainability) forms the core, from which a ‘web’ of positive externalities is evolving. Sustainability, combined with endogeneity, hence acts as a primary eco-economic *initiator* in Devon.

Market governance

Market governance, understood as the institutional capacity to control and strengthen markets and to construct new markets, is a key intended *outcome* of many rural development initiatives in Devon. Creating market/employment opportunities and greater value added is an urgent task that many initiatives strive to achieve. There exist a plethora of producer cooperative and collective marketing initiatives operating to this end in the agri-food sector.

While such initiatives primarily target local (and regional) markets, those in rural tourism necessarily engage with wider national markets mainly by means of websites and directories. Curiously, in contrast to the abundance of producer cooperation in local/organic food sectors, rural tourism is supported by less collaboration between stakeholders themselves, with Devon Farms being one of the few successfully operating in the county. Greater activity can be seen in public–private partnerships, such as Discover Devon Naturally, a DCC-coordinated initiative that promotes visitor arrivals through its website on behalf of more than 300 tourism-related businesses. Since its inception in 2005, it has generated more than £7.5 million and created/safeguarded 107 jobs.

Significantly, while market governance is often the primary stated objective of such initiatives, these intentions are almost always mediated by a broader notion of sustainability. Initiatives are rarely purely aimed at market-related benefits. They are understood as not simply about creating more jobs, or value added, but about doing so in a manner that reconstructs and revalorizes agriculture and countryside as well as their interrelationships with wider society and culture. Among many such examples is Definitely Devon, a well-known dairy farmers’ cooperative set-up in 1996. The founding members were motivated not only by their desire to enhance the long-term viability of their enterprises but also by the concern that “traditional dairy products were losing their Devon heritage”. Consequently, the territorial identity of the products, as well as high animal welfare standards, strongly defines the activities. Hence, *sustainability and endogeneity emerge as the overarching domains against which market governance issues and concerns are shaped and pursued.*

New institutional arrangements

The principal function of new institutional arrangements is to solve ‘coordination problems’ and to support ‘cooperation’ among key rural development actors. Both Devon Farms and TTT are significant manifestations of this dimension. Devon Farms represents a case of successful networking

in a context where collaboration and trust are not conventionally common: New institutional arrangements have mitigated the conventional lack of cooperation in the sector. While the organization faces the challenging task of sustaining a coherent collective identity and voice that brings together diverse interests and views, it has successfully created an inclusive platform for the shared interests in market governance, sustainability and endogenous development.

TTT, on the other hand, is a community-led initiative with a rigorous participatory approach that has grown into a ‘thick’ network of community members collectively engaged in a variety of eco-economic initiatives. It has effectively given a collective identity to the notion of Transition Town, embodied it into the activities of specific action groups and coordinated the available human resources (that is, volunteers) to facilitate their effective functioning. Here, TTT demonstrates the vital role of new institutional arrangements in giving shape and direction to conceptual novelties. TTT would remain an untapped novelty without effective institutional arrangements to ground it in sustainable and endogenous development aspirations of the local community, turn it into concrete plans/actions and ensure that local actors act in a coordinated manner to undertake them. In short, TTT as a new institutional framework has played the critical role of ‘putting theory into practice’. Public–private partnerships and their role of facilitating institutional collaboration are also relevant under this domain. These cases indicate that new institutional arrangements function as a *lubricant* that enhances and crystallizes the interrelations between the initiating domains of sustainability and endogeneity.

While effective coordination is thus essential to the success of many individual initiatives in Devon, it is open to question to what degree these diverse networks are strategically aligned with each other to form a coherent whole—that is, whether sufficient synergies are developing *between* different initiatives and networks to collectively represent a coherent web. New institutional arrangements play a significant role at the individual initiative level, often as a lubricant that translates sustainability/

endogeneity aims and visions into concrete and coordinated actions, while this role seems yet to be witnessed at the regional level.

Social capital

Social capital may be defined as an ability or capacity to get things done collectively, or more specifically, an ability of individuals, groups, organizations and institutions to engage in networks to cooperate, employ and use social relations for common purpose and benefit. This domain has a potential to be a powerful driver in Devon. The county enjoys a strong territorial identity and a relatively high level of volunteering and civic participation. This suggests a degree of social cohesion that may be tapped into as a potent *lubricant*, which, combined with effective new institutional arrangements, facilitate successful implementation of collective actions to deliver eco-economic benefits. Some initiatives especially in the agri-food sector have mobilized this asset, evidenced by the active collaboration that has taken place among local/organic food producers. For instance, the success of South Devon Organic Producers, 13 family-run farms that collectively supply an award-winning organic box scheme, is owed to the members’ capacity to trust and collaborate with one another in order to share the high costs of specialist labour and machinery and to collectively plan the cultivation of 85 different varieties of vegetables, thereby overcoming the problems of consistent supply. Agri-food initiatives are relatively well placed for the mobilization of (especially bonding) social capital, given the symbolic role of food in the county’s territorial identity.

The significance of social capital can also be seen in TTT where the leadership of ‘wilful individuals’ plays a conspicuous role. It successfully took root in the local community primarily due to the enthusiastic participation by a critical mass of individuals who came together under the common cause—that is, effective mobilization and renewal of bonding and bridging social capital of the local community. Such cases illustrate that action cannot be reduced to an individual feat: It takes more than a visionary individual to ‘get things done collectively’. Successful initiatives

involve synergistic interrelations between social capital and new institutional arrangements that provide a key lubricant to set the process in motion. It requires purposive will of collectivities, as well as effective institutional support, for individual acts to be woven into a web of initiatives like TTT.

However, while social capital and new institutional arrangements tend to be closely intertwined, the converse may equally be true in some cases: New institutional arrangements may function to compensate for the (otherwise critical) lack of (especially bridging) social capital. This has been noted earlier in the case of Devon Farms: The divergent interests and views of local actors, which may potentially hinder the successful implementation of collective actions, are reconciled by the institutional capacity of the cooperative to create a happy medium to stay focused on common concerns and to cultivate a degree of bridging social capital that did not exist previously.

In sum, social capital, if effectively mobilized, has the significant potential to enhance positive domain interrelations necessary to spur rural development processes into motion. This potential has been proven by prominent and successful initiatives like TTT.

Novelty

Novelty, or a new configuration that *promises* to work, has historically played an important role in Devon's rural development context. Two major constraints that the county has faced—its peripheral location and the FMD crisis—have paradoxically secured a space for the experimentation and growth of innovative ideas and practices, which culminated in Devon's pioneering status in sustainable tourism and local/organic food. The 'seeds' of these novelties—for example, tourism accreditation, organic box schemes—were allowed to grow to fruition due to its favourable context where food and landscape have historically been accorded not only economic but also sociocultural value as an essential component of the territorial identity. Thus, although neither sustainable tourism nor organic farming as a practice

originates in Devon, they effectively *took root* in the county to shape the course of its rural development trajectory.

At the level of individual initiatives, elements of novelty can be found as a *lubricant* that accelerates positive domain interactions and delivers greater outcomes. TTT again surfaces as a notable case of novelty in its multisectoral and multi-stakeholder strategy.

The unfolding web configuration and its dynamics

On the basis of the foregoing analysis, it is possible to identify a pattern of domain interrelations that collectively represent an unfolding rural 'web'. *Devon's rural development trajectory has been profoundly shaped and driven by the domains of sustainability and endogeneity.* Positive interactions between the two, encouraged by the county's new identity associated with farming, landscape and quality food, have provided a powerful initiator that kick-started eco-economic processes especially in the wake of the FMD crisis. These processes, often embodied in local/organic food initiatives and sustainable/farm tourism, are facilitated by a lubricant of new institutional arrangements that function to coordinate and sustain collective actions, delivering rural development outcomes ranging from immediate economic benefits of market governance to the long-term benefits of endogenous development and sustainability. Market governance is here often contextualized by a broader vision of sustainability of which it is seen as a part. In successful initiatives, this positive interaction between market governance and sustainability may feed back into the initiating domain interrelation, creating an expanding rural development cycle: The combination of tangible economic benefits and wider environmental/sociocultural sustainability benefits may provide a further impetus to the unfolding of eco-economic processes. Such a *virtuous cycle* seems to capture some of the dynamics and growth of successful local/organic food and rural tourism initiatives. In this context, social capital, in the form of cooperation and a sense of

common purpose among producers and community members, may play an important complementary role by further consolidating the functioning of new institutional arrangements especially in the agri-food sector, while its relevance in other practices is rather uncertain. Novelty is here an important lubricant not only at the level of individual initiatives but particularly at the level of the web by providing avenues of pursuing synergies between sustainability and endogeneity (in the form of the organic box scheme, sustainable tourism and farm tourism). These interrelations can be expressed in the diagram below (see Figure 2).

This 'web' may enjoy relatively high *density* in terms of the volume of activity that it has spawned (especially in the agri-food, tourism and sustainable energy sectors). However, evidence is weak for the *coherence* of this web insofar as the diverse and numerous actors and initiatives may not be strategically aligned or coordinated to allow the emergence of a coherent whole. In other words, there is

evidence for a degree of positive domain interrelations described above developing at the level of individual initiatives/networks but not necessarily between initiatives/networks at the level of the regional 'web'.

The significance of each domain may be expressed in the format of the original conceptual model in Figure 3.

Mobilizing the rural web: moving off the carbon-based treadmill in a peripheral rural region

The end of oil?

The rise of the oil industry has clearly been one of the primary economic drivers in Shetland since the 1970s. The relative prosperity that the Islands have enjoyed is directly or indirectly owed to the oil-related income and employment. While this has provided a secure economic environment for the rural economy, it may have also reduced the urgency for such eco-economic initiatives to develop in the first place. As the situation gradually changes with the end of the Sullom Voe Oil Terminal's life span in view, the favourable situation is expected to turn into one of the key rural development challenges in the near future.

From extreme peripherality to eco-economic centrality

Shetland's peripheral islands location and associated transport and communication difficulties have been perceived as a major obstacle to its socio-economic development. Remoteness, however, also entails physical and cultural distinctiveness, and there is evidence that development stakeholders are beginning to embrace and capitalize on this distinctiveness. The local 'branding' strategy is a key area. It is an attempt to create added value by highlighting the special quality that the Islands' ecological endowments and uniqueness are believed to create in agri-food, fisheries, wool knitwear and associated tourism products. The shift in emphasis from reliance on non-branded anonymous oil/fisheries/agriculture to territorially specific, branded, quality ecological products and services

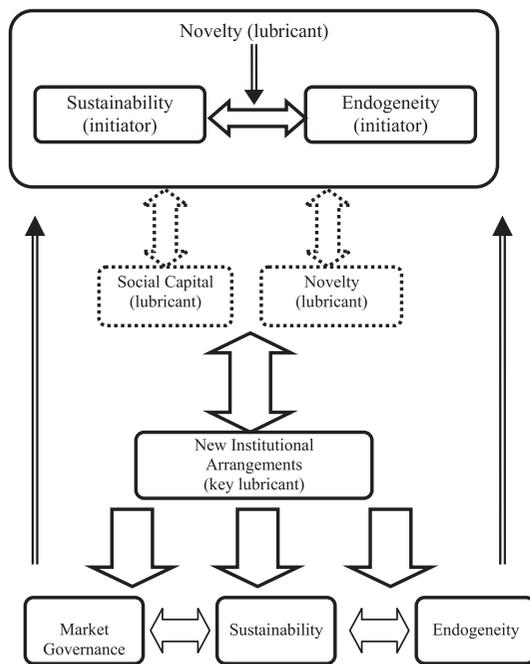


Figure 2. Rural web configuration.

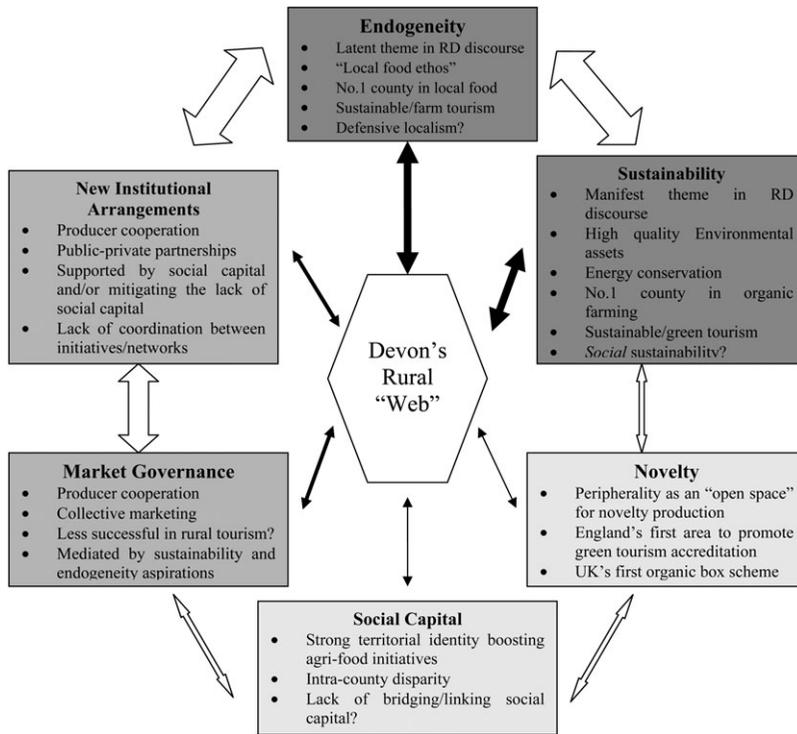


Figure 3. Actual configuration of the web.

Note: Colour indicators: dark grey, most important; medium grey, medium; light grey, least important.

holds out the potential to turn remoteness into a central marketing and branding strategy built upon provenance and novelty.

Public-sector-led development: ‘lock-in’ or stimulus?

The public sector, especially Shetland Island Council (SIC), has played a prominent role in shaping Shetland’s course of development. SIC enjoys rather unique status in that the income from the Oil Reserve Fund has allowed the Council to develop a wide range of infrastructures to meet local needs (from schools to leisure centres, museums, library services, community housing projects, roads, ferry/airport terminals and business support). Such a strong public sector presence and the dependency and exogenous lock-in that it has created

may also be seen to constrain the emergence and development of the eco-economy. Indeed, resident attitudes to the public sector seem ambivalent. In view of Primrose (2004, 8), Shetlanders acknowledge their debt to SIC, yet “they also think that Council policies can be wrong-headed, high-handed and immovable. Just as with many organisations which play a guiding or patron’s role, attitudes towards the wisdom of SIC policies can swing both ways”. According to J. Simpson and M. Stalker (unpublished data), there is also a perception that public funding is not distributed in a completely transparent manner. In the tourism sector, there has been conflict around what the funding bodies, vs. the entrepreneurs, feel is the right type of project for development. Consequently, “[un]able to grasp essential elements of the support strategy,

those with creative energy for *new* ideas (as opposed to re-development ideas) have sometimes felt thwarted by lack of support” (as in the case of developing the aquaculture sector). Thus, while the public sector leadership may accelerate developments in some web domains, such as new institutional arrangements, endogenous development and market governance, it may adversely affect others, especially novelty production and social capital. In addition, the anticipated decrease in oil revenue and the recent controversies surrounding EU competition rules suggest that the Council may find it increasingly difficult to retain its current level of direct economic intervention.

Shetland’s small population and limited internal markets mean that its economy is export oriented and relies heavily on its link with mainland Britain, especially Scotland. Yet its dependence on high-volume low-value products to date, coupled with its peripherality, has rendered the Islands a *marginal* economic player. Similarly, while tourism is emerging as a major sector in the recent years, perceptions of remoteness and high travel costs have presented a major challenge to its growth. In other words, Shetland’s relationship with mainland urban centres has long been defined by distance and its associated costs. The current development strategy is attempting to redefine this relationship by exploring the possibilities of high-quality food and services production, regional branding, niche markets, information and communication technologies, and other avenues of transcending (and now capitalizing on) peripherality.

The rural web configuration

New institutional arrangements

Clearly new institutional arrangements are of central importance in Shetland, where the rural development trajectory has been shaped by strong public sector leadership. The island-level public entities (for example, SIC, Shetland Development Trust, Shetland Enterprise) have been directly involved in many rural development initiatives. These have, for instance, initiated/sustained the cross-sectoral branding campaign, launched the Shetland Food

Directory to market local food and drink products, established the Shetland.org website to promote the Islands as a destination for business/residential relocation, and invested in high-quality production ventures. Scottish and EU level assistance has also initiated or supported key initiatives. Furthermore, these public sector organizations have created the Local Economic Forum, Environmental Forum, Shetland Islands Partnership, Shetland Oceans Alliance and other forums to facilitate multiple stakeholder dialogue and action as well as successful participatory initiatives in which community groups and the public sector have worked in collaboration. These emerging institutional frameworks, designed and sustained under public sector leadership, have evidently acted as the central eco-economic *initiator* in Shetland.

Private sector initiatives present a somewhat more complex picture. On the one hand, Shetland has active trade associations (for example, Federation of Small Businesses, Shetland Fish Processors Association). On the other hand, the business start-up rate is relatively low (3.9 per 1000 of population in 2005 compared to 4.7 in Highlands and Islands and 4.2 in Scotland), and there is a reported lack of collaborative culture in the private sector (J. Simpson and M. Stalker, unpublished data). This is often attributed to the long period of economic stability and the tradition of self-reliance, which may have reduced the need or the motivation for collaboration among local actors. This suggests that, while an effective framework for institutional collaboration, along with a relatively favourable financial and political environment, is provided by the public sector, *collaboration among local actors* is weak. This is seen as restricting the scope for the full development of new institutional arrangements. Rebuilding social capital, in other words, may hold the key to maximizing the potential of the Islands’ institutional capital in the unfolding of the web.

Social capital

Shetland’s distinctive culture and history provide a strong island identity and sense of community, resulting in a high level of voluntary sector and community activity supported by the public sector.

This implies a considerable degree of *bonding* and *linking* social capital that facilitates successful participatory or partnership-style initiatives mentioned above. The active role played by the public sector in these initiatives implies particularly well-cultivated *linking* social capital. The *bonding* potential of the strong territorial identity and sense of community, on the other hand, may be counteracted to some extent by the culture of self-reliance and independence. This is reflected in a set of initiatives whose full potential is yet to be explored due to a lack of collaboration among local actors. For example, Shetland Livestock Marketing Group is a cooperative established in 2003 to deliver best value to farmers and crofters for their distinctive produce through collective processing, marketing, branding and quality control. Despite the low cost of membership and the apparent benefits (Shetland Livestock Marketing Group has won two national awards for its lamb brands), 70% of Shetland's livestock producers have refused to join the group, leading to a lack of resources for the group's work (Morgan and Morley, 2007, 29).

Shetland has a potentially significant stock of *bonding* social capital that is not always sufficiently mobilized to facilitate the effective workings of new institutional frameworks. Related to this is the relative absence of *bridging* social capital. It has been reported that Shetland's community activity may not be entirely inclusive and that some individuals and groups may experience a sense of isolation and exclusion (Perring, 2006, 60).

There is therefore a need for increasing the potential of existing bonding social capital and for cultivating and sustaining bridging social capital in order to ensure effective functioning of new institutional frameworks and equitable access by all rural actors to rural development processes and benefits. Overall, social capital is a potentially powerful web *lubricant* in Shetland; yet it has been unevenly developed to date, strong in linking, moderate in bonding and relatively weak in bridging capacities.

Reconstituting endogeneity

Endogeneity is clearly a key web dimension in Shetland, a community that has relied primarily

on natural resource mobilization for its livelihoods, be it oil, fish or sheep. In more recent years, the mobilization of the Islands' cultural and archaeological resources has presented new possibilities for the tourism sector. Despite changes in the relative mix of individual sectors over the years, Shetland's overall development strategy has always been a strongly endogenous one. In the case of oil, for instance, in addition to the direct local employment of more than 700, some of its income has been redistributed to the community through the Oil Reserve Fund managed by SIC who has invested in and assisted local businesses and community activities. Nevertheless, it is open to question, especially in the case of oil, to what extent this has enhanced the community's *autonomy* and *control* over their resources. The oil/gas resource mobilization is controlled by international capital such as BP and Shell, and its profit for the community is managed by SIC, which does not leave sufficient room for genuine community engagement or ownership. The fisheries and the agricultural sectors have also been dominated by low-value products that are devoid of territorial character and full local control. In other words, oil production, the backbone of the Shetland economy, along with the key traditional sectors, has been characterized by a degree of disembeddedness.

Shetland's revised development strategy is significant in this context as it indicates a more distinct emphasis on territorial embeddedness on both physical/environmental and sociocultural dimensions. This envisions natural, environmental and sociocultural resource *reconfiguration* (rather than just mobilization) that revolves around the distinct territorial character of these resources. Branded high-quality food production emerges as an overarching theme. In livestock farming, Shetland Livestock Marketing Group has stressed the unique quality of Shetland meat—that the islands' herb-rich pastures, heather clad hills and seaweed-strewn shores lend its product a unique texture and taste—and won national awards for its lamb brands. In knitwear, attempts have been made to protect and highlight the distinct quality of the internationally renowned sheep wool product with a new marketing strategy and quality labelling.

Similarly, in tourism, the current emphasis is on targeting niche markets in cultural/adventure/eco-tourism by emphasizing the islands' unique environmental and cultural assets. There is thus a degree of synergy here between this renewed emphasis on endogeneity and institutional frameworks that facilitate it. At the same time, the key to the success of these re-embedding strategies lies in ensuring and increasing local actors' participation and ownership. In the food and drink sector, local producers and processors are generally supportive of the idea of branding yet also unsure about its operation or benefits, concluding that "progress on the Brand appears to be very slow, and does not appear to be industry-led" (J. Simpson and M. Stalker, unpublished data).

In summary, endogeneity, coupled with new institutional arrangements, constitutes the core of Shetland's web development—both as its *initiator* and as its *outcome*—with its full potential waiting to be explored. It could trigger the unfolding of a 'web' of positive domain interrelations insofar as it is enhanced by effective lubricants, such as social capital, market governance and novelty production.

Market governance and novelty

The domains of market governance and novelty are of emerging importance in Shetland's trajectory but crucial to its renewed endogenous development strategy. In its attempt to shift from simple resource mobilization to territorially embedded resource reconfiguration, Shetland is seeking to establish branded high-quality production across its key sectors, with a strong emphasis on market governance measures. SIC spearheaded this initiative in 2003. The Council has since developed a tourism logo, a local food directory and a website that promotes Shetland as a business/residential relocation destination. Private sector initiatives may be uneven yet important in some areas. An example of successful individual enterprise initiative can be found in Blue Coo Ice Cream, a company established with assistance of Shetland Enterprise, whose specialist ice cream made from local ingredients is marketed emphatically as 'boutique ice cream' and a "uniquely

'Shetland' food product'" (Shetland Enterprise 2008). An important example of a sectoral initiative is provided by knitwear producers, who have sought to re-establish the sector as a quality brand and focus on higher value added by targeting niche markets, such as smaller boutique-style retailers. Although the Shetland Knitwear Trades Association, the former umbrella producer group, was dissolved (which once again suggests the significance of social capital as a missing link), the initiative is being taken over by smaller producers both individually and collectively with an increasing emphasis on quality and branding. Notably, there is a potential here for novelty production in the form of retro-innovation, an attempt to renew the age-old product of the Island's knitting culture as a modern brand associated with exclusive quality that derives from the uniqueness of local wool and from a mix of the 'old' and the 'new'—traditional patterns and modern modifications, traditional knitting techniques and punch-card-knitting machines.

These resource reconfigurations rely on various marketing measures to establish a distinctive product image of Shetland by capitalizing on its geographical/cultural/ecological/historical uniqueness. Remoteness, the hitherto greatest development constraint, may provide some degree of advantage here. Novelty production that maximizes the market value of this distinctiveness may further expand the scope for the success of this strategy. In short, market governance and novelty, along with social capital, function as important *lubricants*, mutually interacting while also interacting with the initiating domains to facilitate the evolving of a coherent web.

Sustainability

Environmental sustainability is an increasingly important but emergent dimensions of Shetland's web. Historically, Shetland has had to manage the impact of the oil industry. SIC has done this more or less successfully by containing all pipeline terminal facilities at Sullom Voe; yet there have also been incidents of environmental damage such as the 1993 oil spill (in which 85,000 tonnes of crude oil was spilt when a tanker ran aground off

Shetland's south coast). Fisheries management has had more mixed results. North Sea fisheries are facing a crisis. The spawning stock of North Sea cod has declined by more than 80% since the early 1970s. Fish farming has been criticized by environmental and welfare groups as environmentally damaging, and more recently, the world's first attempt at sustainable organic cod farming in Shetland collapsed due to high costs and supermarket marketing pressures. Faced with these challenges, some initiatives in Shetland have taken environmental sustainability as their primary concern. Community-public partnerships or multi-stakeholder collaboration again appear to be the predominant style. A typical example is the Shetland Seafood Development Project, which has for the first time drawn together industry, training, research and economic development bodies to develop a common fisheries development strategy.

Shetland is beginning to turn its attention from the exploitation of non-renewable and finite energy resources to the generation of renewable energy and food. Its energy production in the past has failed to take advantage of its abundant renewable energy sources, such as wind, wave and tidal power: It relies on oil and waste gas for 93% of its energy production (Shetland Island Council, 2000, 9, 26). In 1995, the Shetland Energy Unit was established within the Council, followed by the launching of the Shetland Energy Plan in 1998, whose objectives were to reduce the reliance on oil, to maximize the use of local renewable resources and to promote energy efficiency and sustainability. After 30 years of dependence on oil, Shetland is increasingly under pressure to search for a 'post-peak oil' strategy.

However, this initiative is currently facing a major challenge. Viking Energy, a joint venture by Scottish and Southern Energy and SIC, is planning to develop a 550 MV wind farm (consisting of 154 large wind turbines) in the central mainland of Shetland, with generated energy to be exported via an underwater cable to the UK urban centres. This proposal has resulted in a considerable rift in the community. Sustainable Shetland, a newly formed opposition group with 250 members, has protested

that the wind farm was a money-making venture for the local authority and would destroy the islands' natural beauty and quality of life, promoting instead energy conservation measures and small-scale community-based energy generation projects. The construction, they have argued, will release large amounts of CO₂ and damage the fragile environment. The debate is yet to be resolved. This indicates another fissure in the Islands' stock of social capital, which impedes the fulfilment of Shetland's sustainability potential.

Furthermore, it is not clear what role this latest public-sector-led approach to renewable energy generation is to play in the unfolding of Shetland's rural 'web'. On the one hand, with an estimated £30 million annual profit for the Council, the project appears to have the intention to simply replace oil with wind as a secure source of energy/income/employment (and "underpin economic prosperity in Shetland for decades to come" in SIC's words) (SIC, 2006). This may run counter to the Islands' emerging strategy for territorially embedded resource reconfiguration. Indeed, environmental groups have argued, in support of Sustainable Shetland, that the project is to turn Shetland "from an island community into little more than an offshore UK wind factory" (The Observer, 2008). On the other hand, however, Shetland is endowed with one of the finest exploitable wind resources, with its existing wind farm having the largest per unit installed capacity in the world (Renewable Energy UK, 2007). Exploring the sustainability and endogenous development potentials of hitherto neglected territorial resources, combined with more embedded branded quality production, could accelerate Shetland's attempt to transform itself into a more resilient rural economy with dynamic and multi-functional land use. A key factor will be how successfully it develops and mobilizes its social and institutional capital.

Thus, environmental and social sustainability has the potential to rise in importance both as a rural development *initiator* and *outcome*. For this to take place, however, it needs to establish critical synergy with the core endogenous development strategy, with social capital and new institutional

arrangements sufficiently cultivated to facilitate this interrelation.

The unfolding web configuration: mobilization and dynamics

Shetland’s development trajectory has thus evolved with *endogeneity* as its core. In past decades, this endogeneity has been expressed as the mobilization of oil, marine and other natural resources, which has brought economic prosperity to the Islands and provided the Council with the political and financial capacity to take a decisive role in shaping the course of the Islands’ development by creating favourable *new institutional arrangements*. The two dimensions have therefore functioned as Shetland’s primary regional development initiators. The strategy currently emerging in Shetland at the threshold of an energy-scarce ‘post-peak oil’ age is to radically renew this web configuration with a shift from a reliance on non-branded anonymous oil/fisheries/agriculture to territorially specific branded quality products and services. *Market governance*, and possibly *novelty production*, serves to facilitate this crucial move as key lubricants. At the same time, the rise of *sustainability* in Shetland’s development discourse adds a new dimension to this picture.

For this emerging web of interrelations to develop a vital coherence, the new emphasis on sustainability needs to generate sufficient synergy with the core of the web, endogeneity. The progress so far appears to be uneven. What may be a missing link here is the *cement* or bonding of *social capital* to hold these domain interrelations together—that is, the capacity of the community to engage all development actors in a collective process of shaping the ‘web’ against the institutional background that has long been dominated by the public sector. The outcome of these interrelations, if successfully woven into a coherent web, is endogenous development that is, simultaneously enriched by (especially economic and environmental) sustainability. These may be expressed in the diagram below (see Figure 4).

The significance of each domain may be expressed in the format of the original conceptual model in Figure 5.

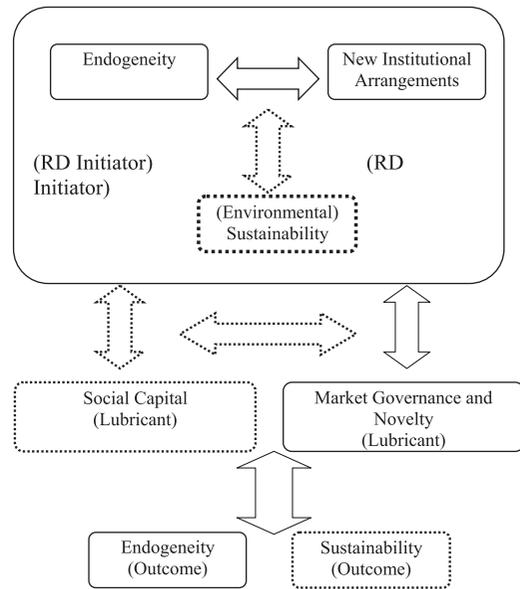


Figure 4. Shetland’s rural web.

Conclusions: unfolding webs as drivers of the differentiated regional eco-economy

The relocation of agri-food is, as this analysis of Devon and Shetland shows, dynamically linked to both the unfolding of rural webs and the broader if uneven development of the rural eco-economy. In this sense, agri-food is being dynamically revalued, not only as food in itself but also as part and parcel of the more embedded and synergistic process of eco-economic development. This process, as we have seen with the different emphases in web domain development depicted here, is inherently intersectoral and integrative in nature.

As postulated at the start of the paper, in introducing the concepts of the rural web and its role in evolving the eco-economy, agri-food initiatives tend to represent more than the sum of their parts. They provide a conduit for multisectoral developments and social actions, which tie in tourism, craft production, consumers’ tastes and novel marketing initiatives in innovative ways. In so doing, they begin to transform the rural economy around a set of more eco-economic principles. It

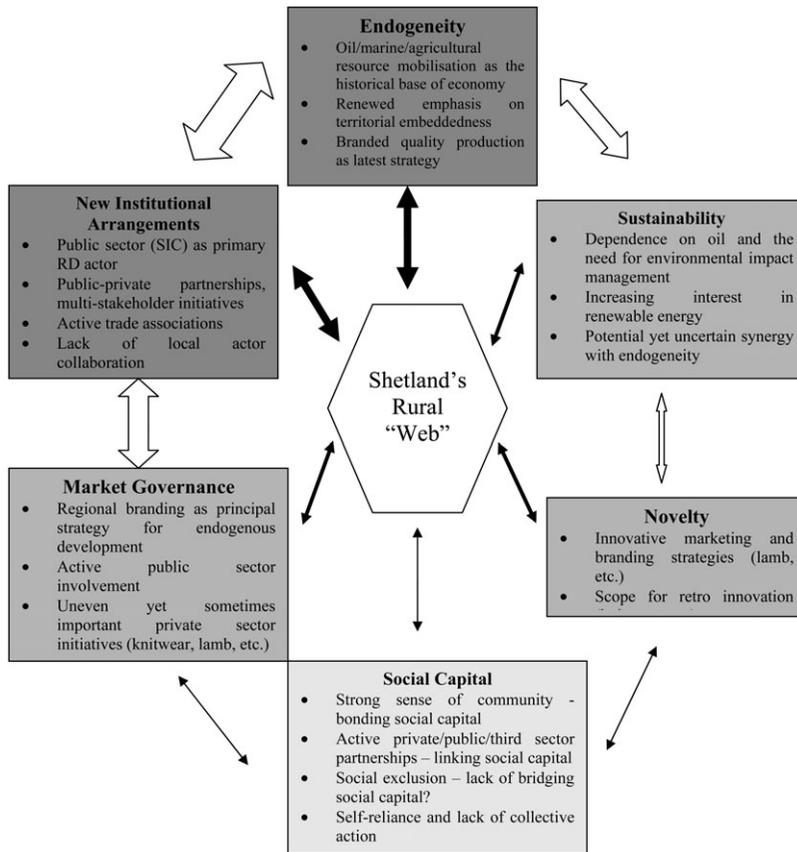


Figure 5. Actual configuration of the web.
 Note: Colour indicators: dark grey, most important; medium grey, medium; light grey, least important.

follows from these analyses that for individual relocalizing and regionalizing initiatives to prosper, they need to feed off the supportive infrastructural and interactional domains of the webs. The very ability to develop new institutional frameworks, to work with and shape the prevailing governance of markets or the opportunities to access the knowledge and experience of others who are committed to a more robust endogenous eco-economic approach all provide an important and potentially rich fabric within which to create more sustainable initiatives.

This clearly varies between rural regions, with stronger and more established links between, sustainability and endogeneity in Devon, for instance,

and more of a historic reliance on forms of traditional state support in Shetland, where new institutional arrangements and endogeneity come to the fore. Nevertheless, some common building blocks of the emerging eco-economy have been identified here which display theoretical and conceptual pointers as to why some regions may experience eco-economic ‘take-off’ more than others. The question is can they sustain and intensify these web developments and pathways in the face of changing external conditions as outlined in the web model (Figure 1)?

We have seen, especially in the Devon case, that earlier ‘ruptures’ with the prevailing conventional agri-food system provided ‘spaces to act’ to attempt

something different and that the pending decline in North Sea oil may well provide similar stimuli in Shetland. Indeed, it is hard to see the prospering of web developments and growth of the eco-economy without such spaces of opportunity opening up in the conventional carbon-based sectors that still prevail. Current and future transitions and periodic crises in resource sectors like FMD in Devon and the oil sector in Shetland clearly provide the opportunities for new web-based eco-economic development. Relocalized and regionalized agri-food networks are one key ingredient in fostering these contested transitions.

We can thus trace here some important conceptual and empirical links between the integrative functions of relocalized agri-food networks, their role in mobilizing and unfolding the web and then how this unfolding leads to the emergence of a denser set of eco-economic relationships. A key question concerns how durable and self-sustaining these regionalized eco-economies will become and what processes and policy interventions are necessary to keep the webs unfolding over time and space? Clearly, in both cases, we see the beginnings of an agglomeration of eco-economic activities being shaped and giving different emphases to the domains of the rural web. How these will contend, however, to counter-developments—such as the insertion of the corporate-controlled bioeconomy—remains to be seen. What can be concluded is the need to see such webs as anchored in new social and spatially endogenous processes, which are distinctive to the bio-economy (see *Anex, 2004; Juma and Konde, 2001*) on the one hand, and the more economic conceptions associated with ecological economic and environmental goods and services literatures on the other hand (*Daly and Farley, 2004; De Groot et al., 2002; Erlich and Mooney, 1983*).

The webs are essentially, socially and spatially constructed and re-enforced by an agreed (if contested and contingent) social redefinition of local and regional endowments and opportunities. In this sense, they are differentiated rather than generic solutions to rural and regional conditions whereby economic performance now becomes an

outcome of these nested webs of production and consumption. As we have postulated at the start of the paper, these concepts begin to provide a new set of tools for a more dynamic and comparative regional analysis, which exhibit different regional development pathways. They also demonstrate how relocalized food networks can play far wider and multifunctional roles in regional development far beyond their more conventional agri-food antecedents.

Endnotes

¹ The evidence upon which this analysis of Devon and Shetland has been built came from a range of secondary and primary interview sources conducted under the ETUDE EU research programme entitled *Expanding the theoretical understanding of rural development in Europe* (ETUDE); from February 2007 to February 2009. After a period of analysis of secondary data for each region, up to 30 interviews were conducted with officials and leaders of a series of eco-economic initiatives in the two regions. This incorporated such bodies as Shetland Livestock Marketing Group, Devon Farms and the Transition Towns initiative in Totnes, Devon. All interviews were taped and transcribed before analysis. In addition, all main rural organizations were examined and included in a preliminary web analysis. Towards the end of the survey period, the resulting web configuration was discussed and verified with selected interviewees; and a stakeholder workshop, including representatives for both regions, was held to discuss preliminary findings. The analysis of the webs for both regions outlined here is a narrative resulting from this database.

² The 2001 FMD outbreak affected more than 2000 premises in 44 counties, unitary authorities and metropolitan districts in the UK, with estimated direct costs to the public sector of £3 billion (*Winter, 2003, 47*). Rural tourism was seriously affected as well as conventional agriculture.

³ Other clustered local food initiatives with a similar approach include Definitely Devon, Exmoor & Quantock Local Food, Local Food For Local Schools, South Hams Food and Drink Association, Dartmoor Direct Co-op, Ocombe Farm Project, Darts Farm Shopping Village and North Devon Food Forum.

⁴ The scheme was launched by TTT's Economics and Livelihoods Group in 2007. Relocalization is here seen as a key aspect of the transition process in which the local

currency system serves to strengthen the local economy while preventing leakage.

⁵ Some of the prominent initiatives with a central sustainability focus are operated or initiated by relatively new residents, such as Northwood Farm (the organic box scheme pioneer).

Acknowledgements

The author would like to thank the supporters of this research, the European Commission, and also research partners Yoko Kanemasu and Roberta Sonnino for their fieldwork and drafting of research reports.

References

- Anex, R. (2004) Something new under the sun? The industrial ecology of biobased products. *Journal of Industrial Ecology*, **7**: 1–4.
- Brown, L. R. (2001) *Eco-Economy: Building an Economy for the Earth*. London: Earthscan.
- Castells, M. (1998) *The Rise of Network Society*. London: Blackwell.
- Cloke, P., Marsden, T. K. and Mooney, P. (eds). (2006) *Handbook of Rural Studies*. London: Sage.
- Daly, H. E. and Farley, J. (2004) *Ecological Economics: Principles and Applications*. Chicago, IL: Island Press, University of Chicago.
- De Groot, R. M., Wilson, M. and Bourmans, R. (2002) A typology for the classification, description and valuation of eco-system functions, goods and services. *Ecological Economics*, **41**: 393–408.
- Devon Food Links (2008). Available online at: <http://www.devonfoodlinks.org.uk>. [Accessed April 2010].
- Erlich, P. R. and Mooney, H. A. (1983) Extinction, substitution and eco-system services. *BioScience*, **33**: 248–254.
- Juma, C. and Konde, V. (2001) *The New Bio-Economy: Industrial and Environmental Biotechnology in Developing Countries*. New York: United Nations Conference on Trade and Development.
- Kanemasu, Y., Sonnino, R., Marsden, T. K. and Schneider, S. (2008) Testing the web: a comparative analysis. Chapter 9. In van der Ploeg, J.D. and Marsden, T.K. (eds). *Unfolding Webs: The Dynamics of Regional Rural Development*, pp. 175–209. Van Gorcum. pp cit.
- Kitchen, L. and Marsden, T. K. (2009) Creating sustainable rural development through stimulating the eco-economy: beyond the eco-economic paradox? *Sociologia Ruralis*, **49**: 273–295.
- Marsden T.K. (ed). (2008) *Sustainable Communities: New Spaces for Planning, Participation and Engagement*. Amsterdam: Elsevier/Emerald.
- McMichael, P. (2009) Banking on agriculture: a review of the World Development Report 2008. *Journal of Agrarian Change*, **9**: 235–246.
- Mol, A. (2007) Boundless biofuels? Between environmental sustainability and vulnerability. *Sociologia Ruralis*, **47**: 297–316.
- Morgan, K. J., Marsden, T. K. and Murdoch, J. L. (2006) *Worlds of Food: Place, Power and Providence in the Food Chain*. Oxford: Oxford University Press.
- Morgan, K. and Morley, A. (2007) *Relocalising the Food chain: The Case of Shetland*. Report to the Shetland Islands Council. School of City and Regional Planning, Cardiff University.
- Murdoch, J., Lowe, P., Ward, N. and Marsden, T. K. (2003) *The Differentiated Countryside*. London: Routledge.
- Perring, E. (2006) *Deprivation and Social Exclusion in Shetland*. Shetland Island Council.
- Primrose, D. (2004) *Skills Survey: Hospitality, Tourism, Tourism and Service Sector Delivery*. Shetland: Island Council Shetland.
- Renewable Energy UK. (2007) *Burradale Wind Farm Shetland Isles*. Available online at: www.reuk.co.uk. [Accessed 2 February 2009].
- Shetland Development Trust. (2008) *Portfolio*. Available online at: www.sdt.shetland.org. [Accessed 2 February 2009].
- Shetland Island Council (SIC). (2006) *Shetland Wind Farm Representatives Meet RSPB*. Available online at: www.shetland.gov.uk. [Accessed 2 February 2009].
- Simpson, J. and Stalker, M. (2004) *Shetland's Food and Drink Sector*. Report to Shetland Local Economic Forum September 2004.
- The Observer. (2008) *Shetlands Storm Over Giant Wind Farm*. 9th March 2008. London: Observer Newspaper.
- van der Ploeg, J. D and Marsden T. K. (eds). (2008) *Unfolding Webs: The Dynamics of Regional Rural Development*. Van Gorcum.
- Ventura, F., Brunori, G., Milone, P. and Berti, G. (2008) In van der Ploeg and J.D. Marsden (eds). *The rural web: a synthesis*. Chapter 8, pp. 149–175. op cit.
- Wang, M. Q. (2004) A product-nonspecific framework for evaluating the potential of biomass-based products to displace fossil fuels. *Journal of Industrial Ecology*, **7**: 17–32.
- Winter, M. (2003) Responding to the crisis: the policy impact of the Foot and Mouth (FMD) epidemic. *Political Quarterly*, **74**: 47–56.