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Indicators for the assessment of the potential for employment creation in rural areas

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Abstract

The EU Framework 7 project “RuralJobs” has used the DPSIR model to show the link between ‘driving forces’ of employment and economic prosperity, and policy responses. These driving forces can be ‘endogenous’ or (neo-) ‘exogenous’ to the territory. They act on the labour market or employment (‘state’) through the ‘pressures’ of jobs (economic activities) and people (the labour force). In turn, the employment rate (jobs per person) influences the ‘impact’ (sustainable economic prosperity). ‘Responses’ can be policy responses or socio-economic responses. A set of 40 indicators was compiled from strategies and programmes relevant to employment in rural areas in the EU.

Keywords

Rural employment, indicators, strategies, programmes, DPSIR

1. Introduction

The main outcome expected by the European Commission (EC) from the Framework 7 project “New Sources of Employment to Promote the Wealth-Generating Capacity of Rural Communities” is that “the results will allow a better targeting of rural development measures and future evolution of rural development policies in line with the Lisbon Strategy” (Fieldsend, 2008). This expectation reflects a growing desire by the EC to “make [the Common Agricultural Policy (CAP)] work for Lisbon” (Eposti, 2008). This is linked to a renewed understanding of what is meant by ‘rural development’. It is now widely accepted (e.g. Baldock et al., 2001) that a more integrated, territorial approach, sensitive to the diversity of rural circumstances, rather than a purely sectorial (agricultural) approach, is needed to ensure regionally balanced development, and that rural development priorities should no longer be constrained by the legacy of their CAP origins. Anticipating these policy trends, the research being undertaken in RuralJobs is founded on three hypotheses:

- That a territorial approach to improving the wealth generating ability of rural areas via the creation of new sources of employment is required, whilst recognising the unique role of agriculture and other land-based industries in the rural economy
- Initiatives to create new sources of employment in rural areas must take account of the existence of markets for the products of labour, whether these are in the primary, secondary or tertiary sectors. Frequently, the largest markets are in urban areas
- Rural areas in different parts of the EU are fundamentally different from each other in many respects and that a single, EU-wide ‘solution’ or ‘strategy’ for creation of rural employment is not appropriate

This increasing interest in rural employment beyond agriculture must be accompanied by a better understanding of the relevant factors and processes, and the relationships between them. One approach to this is to review the indicators used by organisations internationally in strategies and programmes of relevance to rural employment within a suitable framework. In this paper, the driving force, pressure, state, impact and response (DPSIR) model (Figure 1) has been used as it is well established and has been successfully applied in other contexts.

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The DPSIR model has been widely adopted with environmentally oriented indicator sets. Here, “social and economic developments exert ‘pressure’ on the environment and, as a consequence, the ‘state’ of the environment, such as the provision of adequate conditions for health, resources availability and biodiversity, changes. This leads to ‘impacts’ on human health, ecosystems and materials that may elicit a societal ‘response’ that feeds back on the ‘driving forces’, or on the state or impacts directly, through adaptation or curative action” (Smeets and Weterings, 1999). In other words, the model assumes cause-effect relationships between interacting components, in general terms although it does not attempt to identify specific linkages.

Wang and Huang (2009) used the DPSIR model to interpret sustainable development of agricultural industrialisation, with efficiency of agricultural production as the ‘state’. Although this approach appears not to have been widely used with respect to employment, as part of the EU Framework 6 project ‘Sensor’ Zhen et al. (2008) used the model in a study of response of land use changes to policy impacts. Driving forces included demography, urbanisation, Government investment in R&D and cars/1000 people; Pressures included land use; state included soil quality and rural employment; impacts included soil erosion, employment and GDP; and responses included land use policy and community participation.

This study has further adapted the DPSIR model as a tool to show the link between ‘driving forces’ which affect employment and economic prosperity, and policy responses. These driving forces (or ‘needs’ at which policy and societal responses can be targeted (Kristensen, 2004)), which influence the demand for workers and the supply of the workforce, and which represent targets for policy (including connecting the supply with the demand through activities such as jobcentres), are the ‘endogenous’ or ‘exogenous’ factors referred to above. To better understand this link, indicators from a series of strategies and programmes relevant to employment in rural areas in the EU have been reviewed in the framework of this model.

2. Data sources and methodology

Numerous indicator sets exist and this study reviews those which are considered to be the most relevant to rural employment in the EU, as follows:

- The OECD document ‘Creating rural indicators for shaping territorial policy’ (OECD, 1994), whilst now very old, is still widely cited in the literature.
- The Key Indicators of the Labour Market (KILM) provides a set of 20 indicators associated with the decent work initiative (ILO, 2007).
- The EU Sustainable Development Strategy (EU SDS) (EC, 2006a) provides the overarching framework covering quality of life, intra- and inter-generational equity and coherence between all policy areas.
- The Lisbon Strategy contributes to the overarching objective of sustainable development focusing primarily on actions and measures aimed at increasing competitiveness and economic growth and enhancing job creation (EC, 2005a).
- The European Employment Strategy (EES) is the main EU level tool to give direction to, and ensure co-ordination of, the employment policy priorities to which Member States should subscribe (EC, 2005b). The EES is accompanied by indicators for monitoring and analysis of progress (EC, 2008).
- The European Agricultural Fund for Rural Development (EAFRD), of which monitoring and evaluation of progress is carried out in accordance with indicators in the Common Monitoring and Evaluation Framework (CMEF) (EC, 2006b).

In the DPSIR model (Figure 1), rural employment (jobs per worker) represents the *state*. Employment has an impact on economic prosperity and other issues such as social cohesion, and these in turn influence policy (and other, such as socio-economic) *responses*. These responses may be targeted either at the *driving forces* which in turn influence the *pressures* on employment, i.e. supply of labour (population) and supply of jobs (economic activity); directly at the creation of more and better jobs, or even at the state, by connecting the offer with the demand. In all ways, policy responses can lead to an increase in employment in rural areas which in turn would have a positive *impact* in terms of their sustainable economic prosperity.

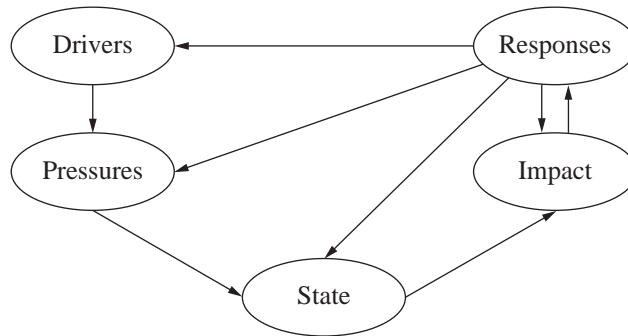


Figure 1: The DPSIR framework, as originally developed for reporting on environmental issues

Source: Smeets and Weterings, 1999

3. Review of indicators in strategies and programmes

3.1. Indicators of driving forces (needs)

Issues defined as ‘driving forces’, i.e. factors which may influence the ‘pressures’ on employment, namely the demand for workers (economic activity) and supply of the workforce (labour force), may be ‘endogenous’ or (neo-)‘exogenous’.

3.1.1. Endogenous driving forces (human, social, financial, natural and physical capitals)

These endogenous driving forces are frequently characterised as five ‘capitals’, namely natural, human, social, physical and financial (e.g. Alkan Olsson et al., 2004). Although the term ‘capital’ is used, most of the assets are not capital stocks in the strict economic sense of the term. The term ‘capital’ is used because this is the common designation in the literature (DFID, 1999). DFID (1999) provides comprehensive definitions for each ‘capital’. In this section, definitions of ‘capitals’ are used which are compatible with the DFID definitions, but simpler and employment-focused, as follows:

- *Human capital* is defined as the skills and knowledge possessed by workers. Workers acquire these skills both through formal education and through on-the-job and life experiences.
- *Social capital* is defined as the networks of relationships among persons, firms, and institutions in a society, together with associated norms of behaviour, trust, cooperation, etc., that enable a society to function effectively.
- *Financial capital* is defined as money used by entrepreneurs and businesses to buy what they need to make their products or provide their services.

- *Natural capital* is defined as a stock of natural resources, for example land, water, and minerals.
- In general, *physical capital* refers to any non-human asset made by humans and then used in production.

In the reviewed strategies and programmes, indicators relevant to human capital can be grouped under the topics ‘educational attainment’ and ‘dynamism’. An example of the former is KILM indicator number 14 ‘Educational attainment and literacy’. The latter, through concepts such as ‘innovation’, ‘R&D capacity’ and ‘entrepreneurship’, tries to capture the aspects of human capital which can contribute to the (economic) ‘dynamism’ of a territory or locality. In fact it is not immediately clear how the inherent dynamism of a territory can be measured, and indicator sets tend to measure the results of activities associated with dynamism. For example, under the ‘economic prosperity’ key objective of the EU SDS, the ‘innovation, competitiveness and eco-efficiency’ sub-theme within the ‘socio-economic development’ theme includes some measures of innovation and R&D.

Topics included under social capital are ‘discrimination’ and ‘crime rates’. Social capital has been associated with differential economic performance (Agarwal, 2004). The reviewed strategies and programmes include very few direct indicators of social capital. For example, there are no indicators of cultural heritage (customs etc.) which may potentially be valorised as sources of employment. Discrimination can be on the basis of age, sex, race or any other criterion. Age and sex disaggregated data of any form may provide some insight into levels of discrimination. The EU SDS indicator ‘gender pay gap’ may be an indicator of sex discrimination in the labour market. High levels of social capital include lower crime rates (various authors, cited by Agarwal, 2004) and low crime is cited as a reason why potential employers and employees choose to relocate to, or remain in, rural areas.

There seem to be no direct indicators of financial capital in the reviewed strategies and programmes. ‘Business investment’ may be a proxy for financial capital although it can be difficult to distinguish between ‘endogenous’ and ‘exogenous’ funds for investment. Running expenditure and tax costs are related to ‘circulating capital’ (the opposite of ‘fixed capital’).

Natural capital can be either renewable or non-renewable and can contribute to employment through its ‘sustainable use and/or consumption’ or through ‘attractiveness’ of a territory. Natural resources are a unique strength of rural areas compared to urban centres, but particularly with the decline in agriculture as an employer, their traditional role as ‘raw materials’ in economic activities providing jobs has declined. Some natural resources, such as coal and other minerals, do not seem to be mentioned at all in the reviewed documents. However, whilst natural (and other) resources in rural areas have significant, direct economic value, the ‘attractiveness’ of a territory, or the standard of perceived ‘quality of life’ it can support, can be a driving force which influences the migration patterns of both the more mobile sections of the population (such as the young, the better educated and the more wealthy) and of businesses, including entrepreneurs (Bosworth, 2006).

Under physical capital, relevant topics are ‘accessibility’, ‘fixed capital’ and ‘attractiveness’. The former includes Transport and ICT infrastructure. For example, under its baseline indicators for Axis 3, the CMEF lists ‘internet take-up in rural areas’ as an objective-related indicator and ‘internet infrastructure’ as a context-related indicator. Greater availability of fixed capital is linked to greater opportunities for economic development. This covers public sector (e.g. hospitals) and private sector (e.g. farm buildings) fixed capital which, unlike transport and ICT infrastructure, do not directly relate to accessibility of rural areas. There seem to be few baseline indicators of fixed capital in the reviewed documents. In addition to being providers of employment in themselves, the level of pub-

lic (schools, hospitals, childcare centres, etc.) and other (shops, banks etc.) services can influence migration rate balances (and therefore the size of the labour force). The presence of built heritage can have similar influences, for example on the level of tourist activity.

3.1.2. Exogenous driving forces (investors, markets, knowledge centres, government, cultural assets)

Defining (neo-) exogenous driving forces is problematic, for several reasons. Firstly, there is no widely-recognised framework, such as the ‘capitals’ approach used with endogenous driving forces. Secondly, some driving forces, such as ‘business finance’, can have both endogenous and exogenous components. Thirdly, baseline indicators in strategies and programmes tend to focus on measuring the status of the territory in question, rather than that of neighbouring territories. Here the framework described by Sabau and Paquet (2009) of investors, markets, knowledge centres, government and cultural assets is used.

Several investment indicators are included in the reviewed documents. Regarding markets, urban centres can be major markets for the products of rural localities, either in terms of ‘export’ of the products from the locality, or of visitors to the locality who ‘consume’ the products. Yet neither the proximity of an urban centre or market, nor the size of that centre or market, nor anything similar, is used as an indicator in any of the reviewed strategies or programmes. As regards knowledge centres, rural localities rarely have the ‘critical mass’ to support a university (or other institute of tertiary education) or a ‘centre of innovation’ and therefore tend to be dependent on urban centres for these services. However, no suitable indicators were identified in the reviewed documents. The same applies to government: no indicators are directly relevant to rural employment and, similarly, no indicators relevant to exogenous cultural assets were identified in the reviewed documents.

3.2. Indicators of pressures (the demand for workers; the supply of the workforce)

3.2.1. The demand for workers

Unlike for ‘supply of the workforce’ (below) and ‘employment’ (Section 3.3.), context indicators which measure the demand for workers in a locality, such as ‘number of available jobs (filled or unfilled)’, ‘number of jobs (FTE)’ or ‘number of companies (tax registered and/or not tax registered)’ are less systematically included in the reviewed documents. Presumably employment is considered to be a closer proxy for number of jobs than it is for size of labour force. At a very local level this can be a dangerous assumption as it disregards the influences of commuting. The error can be substantially reduced by using workplace-based employment data (which can be a good proxy for number of jobs) rather than residence-based employment data.

3.2.2. Supply of the workforce

Strictly speaking, the ‘supply side’ pressure on employment is labour force (the proportion of the population of working age). Population could be argued to be a component of human capital. However, the two are by definition closely correlated and many indicator sets include population and labour force indicators in the same section. Furthermore, indicators such as ‘demographic pressure’ (the population between 5 and 14 in relation to the population between 55 and 64) provide an insight into likely future ‘supply side’ pressures on employment (UN, 2007).

3.3. Indicators of state (employment)

There is general agreement between strategies on the choice of indicators for measuring employment-related objectives. With these indicators it is possible to measure:

- State, i.e. the situation or level of the indicator
- Dispersion, concentration or variability of the indicator across territorial units
- Tendency or trend over time

OECD (1994) captures the key issues such as the distinction between ‘labour force participation’ and ‘employment’ and ‘unemployment rates’, and data disaggregation on the basis of sex and age, and by sector (agriculture, manufacturing and services, plus employment in the high-tech sector), and changes over time. However, the reviewed indicators should cover more than current employment rates, or even trends. The EU is not just seeking ‘more’ rural jobs, but also ‘better’ rural jobs in compliance with the idea of ‘decent work’, which was first formulated by the International Labour Organisation in 1999 (Ghai, 2006). Amongst its other components, the decent work idea encompasses providing opportunities for work that is productive and delivers a fair income. In line with the Lisbon Strategy, through its aim of more and better jobs, job quality is the central objective of the European Employment Strategy (EC, 2008). The KILM document looks ‘beyond the employment/unemployment dichotomy’ by measuring quality of employment, an approach which does not seem to have been widely adopted in other documents reviewed here.

3.4. Indicators of impacts (sustainable economic prosperity)

Sustainability involves the simultaneous pursuit of economic prosperity, environmental quality and social equity (Hasna, 2007). This ‘triple bottom line’ approach to sustainability is fully accepted here, particularly as the sustainable use of natural capital is of particular importance to rural areas. However, the most direct impact of more and better jobs is economic prosperity, typically defined as “stage in an economic cycle in which conditions of relatively low unemployment and high total income prevail, leading to high purchasing power (if the inflation rate is kept low)” (BusinessDictionary.com). Economic prosperity is a key objective of the EU SDS and, as an example, within this the sub-theme ‘economic development’ includes two indicators of ‘GDP’ and one of ‘household disposable income’.

3.5. Indicators of responses (including connecting the offer with the demand)

3.5.1. Policy responses

A wide range of policy responses are defined by the input, output, result and impact indicators of the CMEF and Structural Funds, 2000-2006, and also by relevant indicators from the European Employment Guidelines.

Responses targeting endogenous *driving forces* include ‘increase in the participation rate of the labour force to training’ (human capital); ‘cooperation for development of new products, processes and technologies in the agriculture and food sector and forestry sector’ (social capital); ‘SME investment (leverage effect)’ (financial capital); ‘reversing biodiversity decline’ (natural capital); and ‘increase in internet penetration in rural areas’ (physical capital). In terms of *pressures*, ‘employment (created)’ and ‘employment (safeguarded)’ are widely used indicators. The unit of measurement, for example in the case of Structural Funds, 2000-2006, is jobs (i.e. ‘number and % of total jobs created and safeguarded (men/women)’), not employment. Thus, strictly speaking, these programmes are targeted at the ‘demand for workers’ component of *pressures* rather than at employ-

ment (*state*). Regarding the ‘supply of the workforce’, the CMEF output indicator ‘early retirement’ (number of farmers/farm workers early retired) seems to be inconsistent with the stated aim of the European Employment Strategy of ‘supporting longer working lives’.

With respect to *state* (employment), there are several indicators for measuring the effects of interventions designed to connect the offer with the demand (i.e. get people into jobs). For example, linked with the European Employment Guidelines ‘activation of long-term unemployed’ is a direct measure of LMP (lifestyle modification programme) interventions. As for *impacts*, no response indicators directly targeting economic prosperity were noted.

3.5.2. Socio-economic responses

Commuting and *migration* are ways in which the population ‘connects the offer with the demand’ by travelling to, or relocating to, localities where jobs are available. The only commuting indicator noted was ‘proportion of long distance commuting’ in the ESPON 4.1.3. report (BBR, 2007). This would provide a vision about the adequacy between local provision and demand of jobs but data are not available across the entire EU and it is not used in any of the reviewed documents. Migration can lead to urbanisation (rural depopulation) or ‘counter-urbanisation’ and appears as an indicator in OECD (1994), the CMEF and the EU SDS.

The *creation* and *relocation* of businesses are also socio-economic responses. The indicator ‘employment in newly-established enterprises’ in the European Employment Guidelines indirectly measures the creation of business enterprises. In Structural Funds, 2000-2006, the indicator ‘attractiveness of the area’ under the theme ‘urban development’ is defined as ‘businesses/commerce settling in the renewed area (number)’.

4. Recommended indicator shortlist

The range of topics which are relevant to rural employment and rural economic prosperity is illustrated by the fact that many of the indicators under the following themes of the EU Sustainable Development Strategy are cited in this report: ‘socio-economic development’, ‘sustainable consumption and production’, ‘social inclusion’, ‘demographic changes’, ‘climate change and energy’, ‘sustainable transport’, ‘natural resources’ and ‘good governance’. Not directly relevant are those listed under the themes ‘public health’ and ‘global partnership’.

Similarly, the range of indicators available is almost overwhelming. In this paper, a representative set of (where possible) widely used indicators is used to illustrate how the DPSIR model can show the link between ‘driving forces’ and economic prosperity, via ‘pressures’ (jobs and people) and ‘state’ (employment).

4.1. Indicators of driving forces

Fourteen independent, policy-relevant indicators have been selected to illustrate the range of ‘territorial specificities’ which can have an impact on employment in rural areas (Table 1). Whilst most are obvious candidates for such a list, some are less so. For example, indicator 10 ‘common bird index’ is included as it is one of surprisingly few indicators that are available for quantifying diversity and therefore the (natural) attractiveness of an area.

Shortlist of indicators of endogenous potentials of rural areas

| No. | Name | Description | Source |
|-----|--|--|-----------------|
| 1 | Educational attainment | % adults aged 25-64 with medium (ISCED 3&4) and high (ISCED 5&6) educational attainment | CMEF |
| 2 | Lifelong learning in rural areas | Percentage of adults aged 25-64 participating in education and training | CMEF |
| 3 | Gross domestic expenditure on R&D | Gross domestic expenditure on R&D as a percentage of GDP | Lisbon Strategy |
| 4 | Gender pay gap | Difference between men's and women's average gross hourly earnings as a percentage of men's average gross hourly earnings (for paid employees) | EU SDS |
| 5 | Crime rates | Number of crimes per inhabitant | OECD |
| 6 | Business investment | Total gross fixed capital formation expressed as a percentage of GDP, for the private sector | EU SDS |
| 7 | Tax wedge on labour cost | Ratio of income tax plus employee and employer social contributions including payroll taxes less cash benefits divided by the labour costs for a single earner earning 67% of the average wage | EEG |
| 8 | Share of renewables in gross inland energy consumption | The percentage share of renewables in gross inland energy consumption | EU SDS |
| 9 | Land cover | Percentage of land area in agricultural, forest, natural and artificial classes | CMEF |
| 10 | Common bird index | An aggregated index integrating the abundance and the diversity of a selection of common bird species associated with specific habitats | EU SDS |
| 11 | Connectivity to railway stations | Proportion of population living within 30 minutes journey time by car to the nearest railway station | ESPON |
| 12 | Internet infrastructure | % population that is depending on switches equipped for DSL (digital subscriber line) and/or living in houses passed by an upgraded cable | CMEF |
| 13 | Tourism infrastructure in rural areas | Total number of bed places in all forms of tourist accommodation | CMEF |
| 14 | Child care | Children cared for (by formal arrangements other than the family) less than 30 hours a usual week / 30 hours or more a usual week as a proportion of all children of the same age group | EEG |

Footnote: Indicators 1 and 2 can be disaggregated by sex.

Sources: CMEF: Common Monitoring and Evaluation Framework; SDS: Sustainable Development Strategy; OECD: Organisation for Economic Cooperation and Development; EEG: European Employment Guidelines; ESPON: ESPON project 4.1.3 (BBR, 2007). ISCED: International Standard Classification of Education.

4.2. Indicators of pressures, state and impacts

The 'pressures' on employment (the unit of measurement of which is jobs per person) are (a) the number of jobs in a locality and (b) the total number of people of working age in that locality, whether employed or not. Employment has an 'impact' on the economic prosperity of a locality. Thus, in Table 2:

- The pressure indicators measure the numbers of workers and jobs in a locality
- The state indicators measure the employment status of residents in a locality
- The impact indicators measure the prosperity of the residents in a locality

Table 2

Indicators of pressure, state and impact

| No. | Name | Description | Source |
|----------------------------|---|--|----------|
| <i>Pressure indicators</i> | | | |
| 15 | Population | Number of inhabitants (by sex, and age: 0-14, 15-64 and 65+) | Eurostat |
| 16 | Population density | Number of inhabitants/km ² | CMEF |
| 17 | Number of jobs | Total number of workplaces, occupied + vacant (by agriculture, manufacturing and services if data are available, see Table A.3.) | (a) |
| 18 | Jobs density | Number of filled jobs in an area divided by the no. of people of working age resident in that area | (b) |
| <i>State indicators</i> | | | |
| 19 | Activity rate (Labour force participation rate) | Labour force (employed and unemployed) as a share of total population in the corresponding age bracket, expressed as a percentage | Eurostat |
| 20 | Employment rate | The number of employed divided by the population in the corresponding age bracket, expressed as a percentage | Eurostat |
| 21 | Unemployment rate | Unemployed as a share of the labour force (employed and unemployed) in the corresponding age bracket, expressed as a percentage | Eurostat |
| 22 | Long-term unemployment rate | Those unemployed for a duration of 12 months or more as a share of the labour force, expressed as a percentage | Eurostat |
| 23 | Employment by sector | Employment in agriculture, industry and services, each expressed as a percentage of total employment | KILM |
| 24 | Status in employment | Wage and salaried workers, self-employed workers, and contributing family workers, each expressed as a percentage of the total employed | KILM |
| <i>Impact indicators</i> | | | |
| 25 | Personal income | Per capita (real) | OECD |
| 26 | Inequality of income distribution | The ratio of total income received by the 20 % of the population with the highest income to that received by the 20 % of the population with the lowest income | EU SDS |
| 27 | Housing (crowding) | Persons per room | OECD |
| 28 | Motorisation rate | No. of passenger cars per 1,000 inhabitants | EU SDS |

Footnote: The 'state' indicators can be disaggregated by sex and age (15-24, 25-54 and 55 and over). In indicator 23 the sectors (agriculture, manufacturing and services) are defined according to ISCED but employment in knowledge intensive services, for example, is also of interest.

Sources: (a) A source for a definition of number of jobs has not been identified; (b) the definition of jobs density is taken from Hastings (2003); Eurostat definitions are taken from EC (2008); CMEF: Common Monitoring and Evaluation Framework; KILM: Key Indicators of the Labour Market (ILO, 2007); OECD: Organisation for Economic Cooperation and Development; SDS: Sustainable Development Strategy.

With regard to indicator 17 ‘number of jobs’, workplace-based employment data would be a close proxy, but an underestimate owing to the existence of unfilled work places. Workplace-based employment data is the numerator for the ‘jobs density’ calculation. By contrast, ‘employment rate’ (indicator 18) is derived from residence-based employment data.

The list of ‘state’ indicators has been kept short as the focus of the study is indicators to assess the potential for economic diversification in rural areas, not to simply characterise the nature of rural employment/unemployment. For the latter, a more detailed analysis would need to include the indicators listed in Table 3. Some of these (e.g. ‘time-related underemployment’ or ‘hidden unemployment’) address quite complex issues and data are less likely to be available. For example, there is no all inclusive indicator of job quality. ILO (2007) suggests that employment-to-population ratios (KILM 2), status in employment (KILM 3), hours of work (KILM 6), employment in the informal economy (KILM 7), time-related underemployment (KILM 12) and working poverty (KILM 20) could complement each other as a measure.

In Table 2 the listed indicators of sustainable economic prosperity have been chosen to reflect issues (such as housing) which affect as wide a section of the population as possible.

Table 3

Supplementary list of indicators of state

| No. | Name | Description | Source |
|-----|--|--|--------------|
| 29 | Vacancies per unemployed | Ratio between the total number of vacancies compared to the total number of unemployed | EEG |
| 30 | Part-time employment rate | Total part-time employment as a percentage of total employment | KILM |
| 31 | Employment in the informal economy | The number of persons employed in the informal economy as a percentage of total employment | KILM |
| 32 | Time-related underemployment | The number of persons in time-related underemployment as a percentage of the labour force, or as a percentage of total employment | KILM |
| 33 | Employment; unemployment rate by highest level of education attained | Employment and unemployment indicators disaggregated by educational attainment | EU SDS; KILM |
| 34 | Labour market gaps for disadvantaged groups | Gaps on the labour market, such as difference between the employment, unemployment and activity rates for a non-disadvantaged group in percentage points and the corresponding rates for the disadvantaged group | EEG |
| 35 | Labour reserve | Inactive (i.e. not registered as unemployed) persons wanting to work as a percentage of the working age population (15-64). Annual average | EEG |
| 36 | Farmers with other gainful activity | % sole holders with other gainful activity | CMEF |

Footnote: Indicators 30-34 can be disaggregated by sex

Sources: EEG: European Employment Guidelines; KILM: Key Indicators of the Labour Market (ILO, 2007); SDS: Sustainable Development Strategy; CMEF: Common Monitoring and Evaluation Framework.

4.3. Indicators of responses

Policy responses, by targeting objectives such as communication links, childcare and ‘human capital, skills and adaptability’ (as specified in the RuralJobs call for proposals) can translate ‘jobs’ into ‘employment’ by ensuring that the rural population, firstly, can access the newly-created jobs and, secondly, has the necessary abilities to undertake them.

For several reasons, the results of development programmes implemented in rural localities are frequently ‘not the same’ as in urban centres. Indicators of endogenous driving forces, the ‘intervention logic’ indicators of Structural Funds, 2000-2006 and the CMEF define several topics for which the contribution of EU funding to the creation and safeguarding of rural jobs can be assessed and examples of ‘operational good practice’ can be identified, i.e. where the results *are* the same in terms of several criteria including participation, skills levels, job creation, employment rates etc. These include:

- Participation in education, training, skills development and life-long learning
- Access to business support services including advice and mentoring
- Innovation and entrepreneurship, including developing new products and techniques
- Equal business opportunities for women and other disadvantaged groups
- Business cooperation
- More and ‘better’ jobs including jobs in knowledge-based sectors
- Access to financial capital by business and improved business survival rates
- Sustainable economic exploitation of natural capital
- Greater valorisation of natural capital for ‘quality of life’ and tourism
- Accessibility, including transport infrastructure and ICT
- Energy, water and other services infrastructure
- ‘Fixed capital’ contributing to ‘quality of life’ including rural built heritage

Four independent indicators of socio-economic responses have been selected (Table 4).

Table 4

Socio-economic indicators of responses

| No. | Name | Description | Source |
|-----|---------------------------------------|---|--------|
| 37 | Proportion of long-distance commuters | Number of commuters in a residence area working at more than 45 min. from their residence area / total number of employed residents | ESPON |
| 38 | Net migration | Annual crude rate of net migration, rate per 1000 inhabitants | CMEF |
| 39 | Business creation and development | Number of micro-enterprises supported/created | CMEF |
| 40 | Attractiveness of the area | No. of businesses/commerce settling in the area | SF |

Sources: ESPON: ESPON project 4.1.3 (BBR, 2007); CMEF: Common Monitoring and Evaluation Framework; SF: Structural Funds, 2000-2006.

5. Discussion

The Synthesis of Ex Ante Evaluations of Rural Development Programmes 2007-2013 – Final Report (metis GmbH, 2008) shows that when preparing rural development programmes many programme authorities considered the CMEF indicators to be insufficiently flexible. Thus, this study has not confined itself to using indicators only from one source. As rural development is now widely accepted as a ‘territorial’ rather than ‘sectoral’ (i.e. agricultural) discipline, the use of non-agricultural indicators is essential.

Driving forces can be either ‘endogenous’ or (neo-) ‘exogenous’. The balance of these forces will vary from region to region and within a region can change over time. Ploeg et al. (2008) coin the term ‘endogeneity’ in reference to this balance of endogenous and exogenous resources and the control exerted over that balance (i.e. whether regionally or externally based) and to the destination and use of the produced wealth (i.e. within the region or channelled to other locations). They suggest that endogeneity refers to the degree in which a regional economy is grounded on regionally specific resources and, simultaneously, develops them. They hypothesise that the more endogeneity is developed, the higher the competitive advantage of the region concerned will be. The notion of endogeneity, as Ploeg et al. (2008) observe, does not only refer to material resources. The concept equally (if not especially) refers to social resources, to local, intangible assets such as entrepreneurial and civic culture, patterns of cooperation between economic and social agents and institutional quality.

Amongst endogenous driving forces, direct exploitation of natural capital, which is closely associated with agriculture, is only one of several driving forces on rural employment. The ‘new challenges’ of energy and environmental (including climate change), as well as food, security (Naesager, 2008; EC, 2009), whilst confirming the continued importance of natural capital to the economies of rural areas, will make it increasingly difficult to draw a clear distinction between use/consumption and conservation as they will demand more efficient use of available natural resources. There are several indicators listed in Section 3.1., some of which also appear in Table 1, which are relevant to these issues.

Another important driving force is attractiveness. More ‘attractive’ rural territories can better retain, or indeed attract, population from other rural areas or urban centres (UN, 2007, appendix 5). Terluin and Post (1999) stated that valorising natural landscapes by local actors (i.e. understanding that they are scarce resources and unique development assets that should be kept in good shape) can be a significant factor in regional prosperity. ‘Attractive’ natural resources are of course also an important driving force of tourism in rural areas.

The almost complete lack of appropriate indicators of exogenous driving forces identified by this research might also seem surprising at first. The DPSIR model does not define the geographical ‘locality’ in the context of which driving forces can be classified as endogenous or exogenous. Most strategies and programmes reviewed in this paper are targeted at NUTS2 regions or larger. Similarly, for convenience, administrative regions (NUTS2 or NUTS3) are frequently used as research areas in rural studies. However, evidence from across the EU (e.g. from Bond and Coombes (2007) in the UK and from Radvánszki and Sütő (2008) in Hungary) is that territory of a ‘labour market area’ is commonly sub-NUTS2 (sometimes even sub-NUTS3) in size. Thus, many of the rural employment issues for a rural locality may indeed be (neo-) ‘exogenous’ to the labour market area but still originate from within the NUTS2 region.

Regarding socio-economic responses, the social and economic impacts of migration are well known and this is reflected in the widespread use of migration indicators in the reviewed strategies and programmes. In view of the fact that commuting has environmental, social and economic impacts, and can obscure the fact that job supply in a locality is inadequate, the lack of indicators is surprising. In its REMI study, OECD (1996) included a case study on commuting and drew two major conclusions:

- Concentrations of jobs in urbanised areas, and the need to commute to these jobs, exist in all (case study) countries. There are more workers than jobs in predominantly rural regions, the consequence is a net out-commuting from this type of region
- There are strong inter-regional dependencies and linkages that are especially significant for trends in employment and the labour market. Functional division of space has to be taken into account and any analysis of rural employment should therefore not be limited to rural areas only

Jobs can be created though an increase in business activity either through direct support (measured by the CMEF indicator ‘business creation and development’) or indirectly through addressing ‘driving forces’ (attractiveness) (measured by the Structural Funds, 2000-2006 indicator ‘attractiveness of the area’). Bosworth (2006) has presented evidence from the UK that in-migrant business owners can make a significant contribution to a rural economy.

As well as illustrating the links between rural employment and socio-economic responses, the DPSIR model is helpful in illustrating the links with policy responses. Driving forces are generally considered to be ‘needs’ (e.g. Kristensen, 2004) at which policy responses can be targeted. As we have seen, they may originate from within the territory or from outside.

RuralJobs is expected to “identify employment growth areas where rural development programmes can be targeted to increase their contribution to employment creation”. As part of the research in RuralJobs, Sabau and Paquet (2009) identified five ‘conditions of success’ for rural employment creation. The indicators of endogenous driving forces shown in Table 1 relate to the first three of these, namely ‘foster the diffusion of knowledge among economic stakeholders’, ‘reduce the drawbacks and remoteness of rural areas’ and ‘value the territorial specificities’. Although many alternative indicators are available in the literature (for example Agarwal (2004) uses ‘average house price’ as one of ten indicators in a study on the economic performance of rural areas in the UK), these indicators, as a set, can contribute to the assessment of the ‘endogeneity’ of a region. The response indicators discussed in Section 4.3. are relevant to the fourth and fifth ‘conditions of success’ identified by Sabau and Paquet (2009), i.e. ‘support the creation/maintenance of activities’ and ‘adapt policies to the context’.

In conclusion, therefore, the DPSIR model and the shortlist of identified indicators has proved to be of practical value to the RuralJobs project and can be expected to be of similar use to others undertaking similar research.

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