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# Future perspectives for sparsely populated areas in Sweden

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**Abstract:** *The sparsely populated northern Sweden has been the main target area for regional policy efforts since the 1960s. A rich variety of regional policy measures have been launched over the years. However, despite this and a heavy expansion of welfare undertakings a significant depopulation has taken place. Also the first generation of EU Structural Funds show very weak structural impacts on development of employment and population.*

*Against this background the need is highlighted to reconsider fundamental principles behind policymaking. The paper argues for more active efforts to change attitudes and behaviour among economic actors and households in order to achieve stronger structural impacts. As a critical part of this the elaboration is suggested of new proactive strategies aiming at more sustainable spatial structures of welfare distribution and job opportunities in this type of increasingly vulnerable peripheries.*

**Keywords:** *depopulation, regional policy, spatial planning.*

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## Introduction

An eternal issue in regional development is how to balance between efforts to strengthen traditional structures and to adopt new structural concepts in order to adjust to national and transnational processes of change in demographic, economic, social and political terms. Embedded in this is a critical need for understanding mechanisms and processes, which promote growth of economic activities and attract people more successfully in one local community than in another. According to several authors successful examples of innovative regional development are based on a high level of functional integration through interaction with the territorially-embedded, socio-cultural and socio-economic structures (Asheim and Isaksen 1997; Camagni 1991; Doloreux 2002). Geographical distances, accessibility options, density, agglomeration and presence of various types of externalities provide basic conditions for strength and directions of flows of innovations, knowledge, learning and exchange of information.

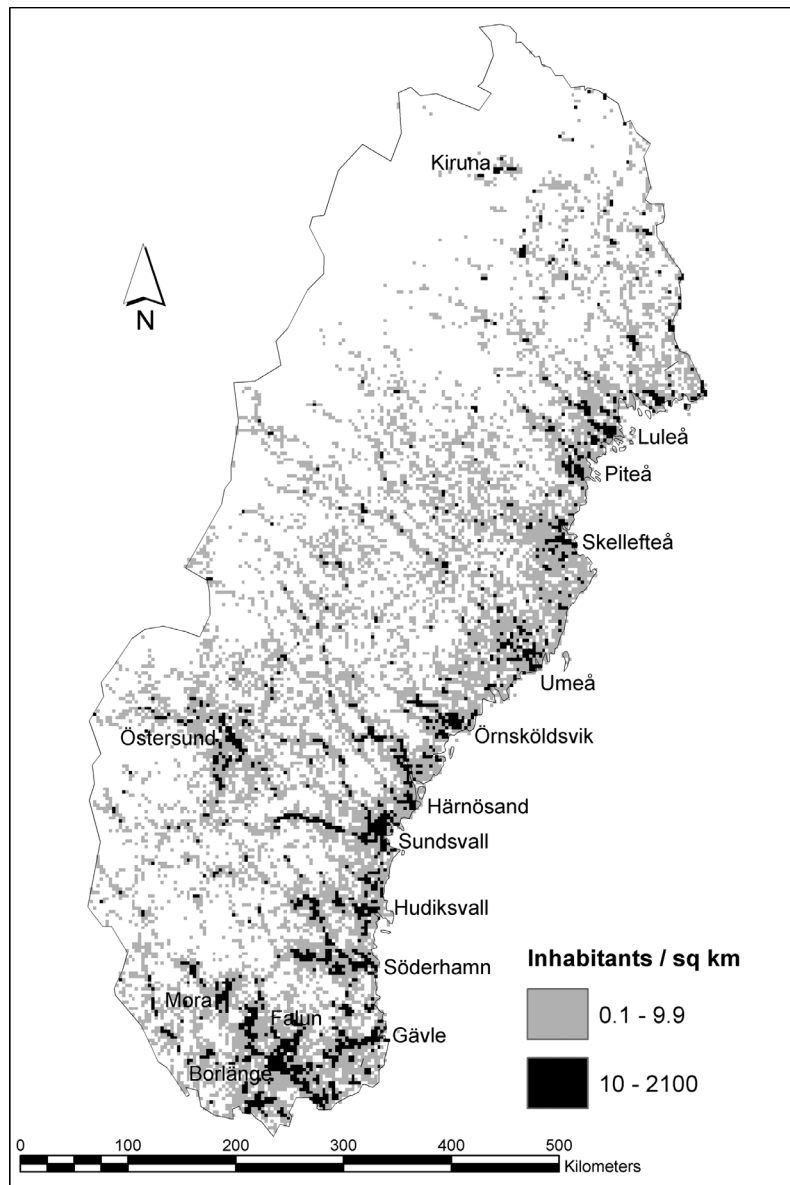
The aim of this paper is to present the weaknesses and to suggest strategies for more efficient interplay between policy-making and socio-economic conditions and processes. Areas in focus are regional structures characterised by sparseness and small scale in terms of population and economic activities in the northern part of Sweden. Figure 1 illustrates the settlement structure with a few main centres and a vast majority of the population in the coastal area. As a consequence, distance is a serious obstacle in maintaining both internal and external relations. A further complication in northern Sweden is a strong depopulation process causing increasingly unbalanced demographical structures accompanied with an internal net migration of people to the main centres and their adjacent rural areas. Thus, the sparsely populated areas become increasingly urbanised. This decline process started in some areas during the 1950s, became more widespread during the 1960s, and has continued, despite a rich variety of regional policy measures that have been implemented, ever since. Figure 2 illustrates the depopulation process from the municipality level perspective.

A more distinct way of describing the sustainability problem is to highlight restrictions in terms of extra costs for development and renewal of competence, transport of raw materials, goods and people and maintenance of a basic service level for individuals and firms. An extremely complicated problem in this perspective is the ageing population. Net outmigration of young people means growing problems to match an increasing demand for social and health services with a decreasing supply of labour. Weaknesses in these dimensions have significant impact on the ability to attract entrepreneurs as well as venture capital.

The implementation of EU Structural Funds is a recent example of rearranged regional policy strategies to compensate for much stronger national and international driving forces with a dominant pull impact in peripheral areas. During the period 1995–1999 the first generation of EU regional policy measures was launched in the northern periphery of Sweden encompassing approximately 709,000 inhabitants in 43 municipalities. The Structural Fund Programme discussed here was Objective 6 that had a total national and EU funding of 457 Millions EURO or 645 EURO per inhabitant over the programme period. Figure 3 illustrates the territorial form of the Objective 6 area.

A final evaluation of the Objective 6 programme (Wiberg et al. 2002) showed rather weak sustainable results after its operative period. According to an estimation, based on interviews with a sample of project leaders, 2,140 sustainable new jobs were created during the programme period. The most optimistic calculation presents 14,100 new jobs. In relative terms the positive employment impact thus varied between 0.7 and 4.6% of total employment. However, as is indicated in Figure 4, total employment statistics shows that the area lost 12,300 jobs (3.8%) between 1995 and 2000 despite the jobs created or maintained through Objective 6 measures.

Figure 5 illustrates that also the depopulation tendency continued. The area lost 40,000 inhabitants between 1995 and 2001, which meant a decrease by 5.3%.



**Figure 1.** The settlement structure of northern Sweden  
Source: Pettersson (2002b).

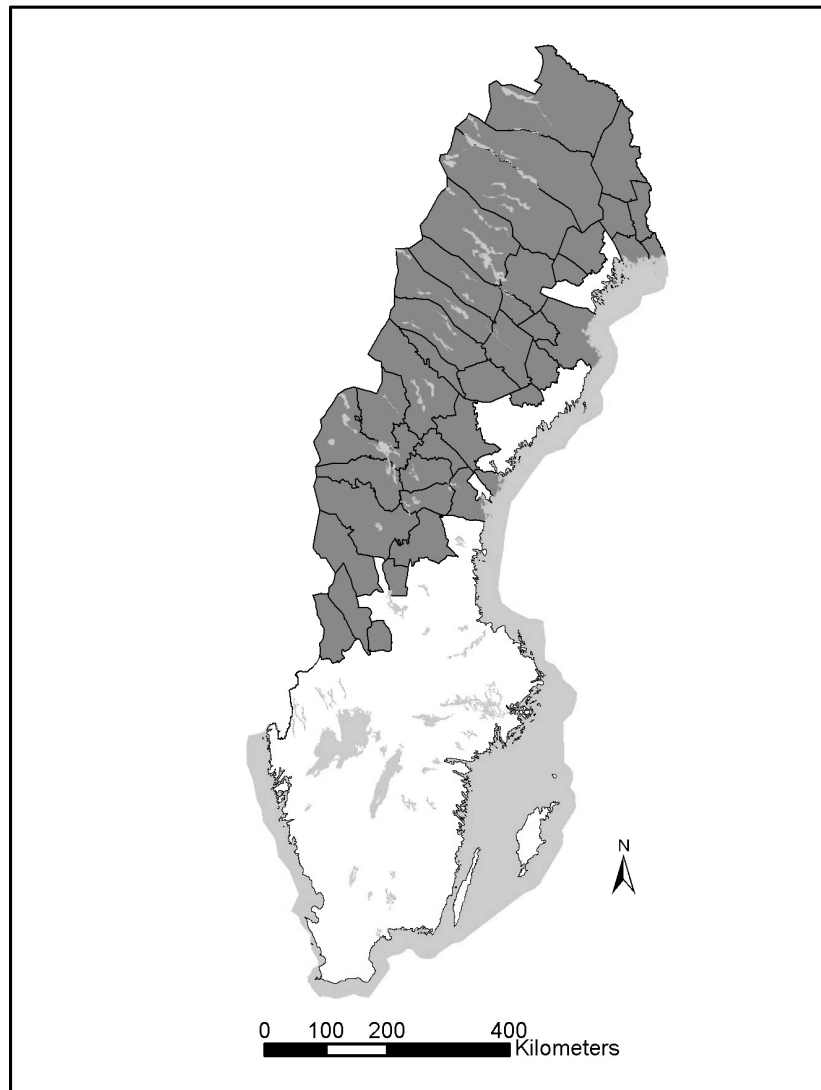
A migration analysis, presented in Figure 6, shows that the area had an immigration wave during the programme period. However, this could not compensate for the contemporary increase of outmigration. Thus, the programme activities did not have any significant positive impacts on the population development.

The weak structural impacts of the Objective 6 efforts are in many respects in accordance with results of national regional policy efforts since the 1960s.



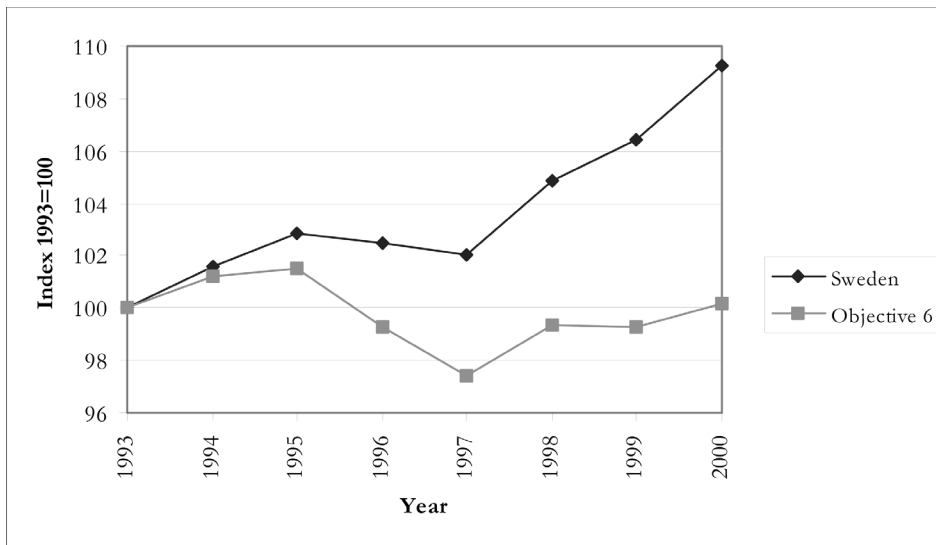
**Figure 2.** Population changes by municipalities 1970-2000. Northern Sweden  
Source: The central government authority Statistics Sweden, Pettersson (2002b).  
Note: Municipalities with population growth above the country average during the period are black. The municipalities with population increase below the average are grey, while those exhibiting population decrease are white.

A general experience over the years is that sparse regions face many complicated, market related and institutional, barriers to integration in economic growth processes. In addition to the unbalanced relationship between resources for regional policy efforts and the various processes towards concentration to dense regions and major nodes the weak impacts are also related to the character of the support distribution. Four problematic features may be identified. Firstly, a distribution of support to many rather small projects of short duration. Secondly, too many places throughout the vast territory have acted as primary targets. Thirdly, many projects have been launched without realistic market estimates. Fourthly, projects have not addressed young people's preferences sufficiently.



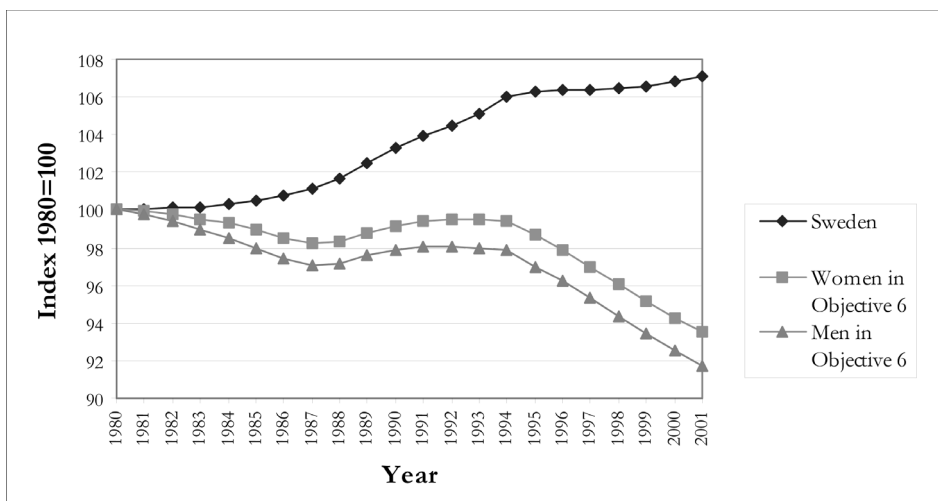
**Figure 3.** The Objective 6 area in Sweden 1995–1999

Drawing from studies of the sparsely populated areas in northern Sweden over the last 40 years (e.g. Persson and Wiberg 1995; Pettersson 2002b) we may conclude that the dominating policy approach has been to combine general welfare policy implementation with special regional policy measures. These were introduced during the 1960s and 1970s in combination with high spatial planning ambitions. With the central place theory as reference the number of municipalities was heavily reduced and ambitions to strengthen the nodal structure was emphasized. There was an intention that the official classification of municipal centres at different levels be followed up by locating and relocating various types of industries and services. However, due to a strong critical opinion this spatial planning approach became successively toned down during the latter part



**Figure 4.** Index of development of employment in the Objective 6 area compared with the average for Sweden  
Source: The central government authority Statistics Sweden.

of the 1970s and later on was replaced by a bottom up perspective with stress on measures to preserve rather than to build new structures in sparsely populated areas. In general terms the regional policy objective during the recent decades has been to maintain the established spatial structures of economic activities and service functions as long as possible and often in significantly subsidised manners.



**Figure 5.** Index of population change in the Objective 6 area and total Sweden 1980–2001  
Source: The central government authority Statistics Sweden.  
Remark: It should be noted that there are more men than women in the Objective 6 area.



**Figure 6.** In- and out-migration from the Objective 6 area 1980–2001  
 Source: The central government authority Statistics Sweden.

As a consequence, a lot of efforts went into slowing down the restructuring of service supplies and to development of distance-bridging solutions and transport subsidies for the sparsely populated areas. Persson, Sätre Ålander and Westlund (2003) are discussing problems related to an increasingly non-market character of rural firms and rural labour areas. They conclude with the following questions: „How should a growth policy for rural areas be designed and implemented, given that many rural entrepreneurs have obvious preferences for social goals and that rural labour supplies increasingly have to be directed to life-long jobs in public service provision? Another way to formulate that question is: is there really a need for a growth policy for each and all rural areas in the European North?“

These questions may be rewritten as statements of the following type. The general view is a lack of visions and strategies rooted in an updated version of considerations. By working with gradual adjustments, mainly influenced by a back mirror perspective, innovative projects based on visionary perspectives related to ongoing structural social and economic macro processes have been put aside. In addition, a great number of socio-economic evaluations call for more careful policy implementation based on various types of practical learning processes. Key elements in the list of conditions and processes to consider in a reoriented policy making are:

- Depopulation and distorted demographical structures.
- Municipalities facing increasing gaps between available infrastructural, financial and human resources and requirements for a sustainable welfare provision.
- Options and threats related to new information technology.
- Changing economic structure from hierarchical organisations and goods production to network organisations and service production.



- New supply concepts and demand structures within tourism industry.
- Northern locations as a unique resource for industries – for example tests of technology in cold climate and space research.
- Changing individual preferences and life styles.

### Driving forces and perceptions

As a part of globalisation, the European integration processes and on-going transition from a strongly place oriented hierarchical society into a more place flexible network oriented society, make people and firms experience increasing freedom to choose locations over time. As a consequence this produces increased competition across local communities and functional regions. Both in terms of people and firms the competition is about favourable conditions for staying and attracting.

For successful adjustment to these rules among local communities more attention must be paid to the configuration of social, cultural and political networks internally and in relation to the surrounding world. Static competition, often based on cost-minimisation, is increasingly replaced by dynamic competition based on the accumulation of knowledge and experiences leading to continuous changes and a need to acquire competitiveness through utilising these changes (Niiranen 1999).

This leads to the conclusion that the territory for functional relationships should not be considered given a priori, but as a „constructed territory“ with non-physical resources, particularly know-how, and proximity between various types of network actors (cf. Maillat 1995).

Given preconditions in terms of sparse population, small scale economy and limited diversification, Maskell et al. (1998) argue that without a distinct multi-nodal strategy based on division of responsibilities in creating and maintaining a critical mass of entrepreneurial efforts in promoting and organising innovative processes – *localised learning* – many regional contexts will face considerable vulnerability and risks to be bypassed. Thus, to achieve a sustainable socio-economic development a high level of reliance must be on educational options, learning capacities, economic actors and social capital within a rather wide regional range.

The smaller and the industrially weaker a local community is, the more important is the ability to work in networks within a wider range. The networking outside the local community must be more intense since the preconditions do not offer the advantages of geographic proximity. It also makes it more complicated to arrange a dynamic influx of qualified and talented people to take part in creative processes (cf. Hansen 1992).

To sum up, we may stress six basic dimensions of maintaining in and attracting private firms and entrepreneurs to sparsely settled areas:



- Delimitation and acceptance of a limited number of nodes and links as primary arenas for business oriented investments.
- Functionality of internal integration of transport and communication infrastructure.
- Functionality of external relationships in terms of transport and communication options to major centres.
- Both rivalry and collaborative networking between local business activities as significant drivers behind competitiveness in a broader market sense.
- Variety and good quality of local services and learning options for households and individuals.
- Common identity-building and marketing of the functional business arenas.

From an individual and household perspective key motives behind decisions to stay, migrate out of or migrate in to a certain region or place are often a mix of objective conditions and subjective attitudes or preferences. The objective conditions mainly include basic welfare dimensions. Most critical are employment opportunities, and quality and access to various types of infrastructure and services, schools and other educational options.

The subjective conditions are related to preferences and behaviour rooted in gender and personality. It also includes influences, which may be traced back to social and ethnical backgrounds as well as experiences of living in different types of communities. We may label this kind of motives as life style based. Attractive elements in a locality are often recreational options, leisure options and cultural supply. Further, it is recognised that general trends in the society may have impact on preferences and decision-making among individuals and households. It may also be noticed that subjective components seem to be more actively considered when comparing across places not only in Sweden, but also in many other western countries (Pettersson 2002a).

For individuals the objective and subjective dimensions are changing in importance and relative weight across the life cycle. For example, young households with small children, or elderly in need of daily care, claim quite different social service needs compared to other groups.

Due to the strong depopulation trend in the sparsely populated areas, accompanied with a growing demographic distortion in terms of imbalances between gender and cohorts, many existing market oriented firms are forced to adjust to a declining local and regional demand. Even „soft“ public services and parts of the infrastructure face the same type of problems. There is no general model for these adjustments. Firstly, there is a difference between a private service firm and public service activities, which according to laws and decrees must provide all inhabitants across municipalities with basic „soft“ infrastructure in terms of, for example, child care, schools, health care and elderly care. Also police surveillance and fire brigade should be mentioned in this context. A private firm is always free to reconsider its location for various reasons. A reason for considering a relocation may be to meet competition from rivals, changed consumer

behaviour, or better possibilities to reduce production costs. Alternative spatial structures of public service supply depend on a much more complicated decision-making process. A basic difference is that all inhabitants may claim rights to service provision at a minimum quality level within a reasonable distance from home. This means that per capita cost aspects have to be put a bit in the back compared to quality and basic welfare aspects. This also means that the possible new solutions for the distribution of welfare services must be checked more thoroughly across traditional organisational limits. Thus, local administrations must consider collaboration across both sectors and administrative borders.

### Planning aspects

Boekema et al. (2000) suggest an „open space“ character of policy and a planning approach to the addressed issues. The authors viewpoint is that the process rather than the achieved level should be considered. We may here also refer to the notion of localised learning or learning regions (cf. Maskell et al. 1998). An economically successful regional arena is characterized as a geographical space in which a broad range of local actors (individuals, firms, institutions and authorities) engage in mutual and/or interactive processes of exploring information, knowledge sources and earlier experiences. Naturally, the volume and diversity of local R&D capacity forms a basic potential for having and developing innovative capacity. However, the achieved status is no guarantee for successful learning processes. A most critical additional dimension in many cases is the character of the interplay between various key actors. Interest and motivations among economic actors for innovative actions are influenced by resources in the local community in terms of trust, openness, reciprocity and voluntarism (Doloreux 2002).

Policy making and planning at the local and regional level have a critical role in terms of intervention in market related processes having negative impacts on individuals and households in the community and creating barriers to immigration. However, the intervening role, with emphasis on openness for negotiations with various actors, is not easily carried out. Two principal policy making concepts may be identified – laissez-faire or strong spatial planning. With a laissez faire approach a rather slow speed is meant of gradual adjustment close to general practice since the 1980s. The spatial planning approach means a radical change into more concentrated and co-ordinated spatial structures of services and other basic welfare provision backed up by more concentrated economic growth initiatives. As mentioned earlier also this type of approach has been practised in Sweden with the central government in a dominating steering role.

The advantages with a slow and passive adjustment strategy are that individuals and households are given time to find ways to change their daily life and consumption pattern. It may also be regarded as an expression for a high welfare policy ambition – to provide people with basic infrastructure and services irre-

spective of geographical locations and local market conditions. A further argument is often also that individual or collective initiatives and actions may appear more frequently if policy-making has a non-restricted character. According to this view no location suggestion should be stopped or forced into a physical planning setting with a top down character. The main disadvantage with such a planning perspective in sparsely populated regional structures is, as illustrated above, the problem of achieving the long-term sustainable structural impacts. In most situations, available policy measures are neither meeting needs to achieve a critical mass of geographically concentrated and coordinated action, nor offering necessary time for subsidised firms to establish themselves in their market niches. A further disadvantage, creating special problems in case of a continuous depopulation process, is that per capita costs will reach very high levels. It also increases matching problems between supply and demand for labour, and supports increasingly vulnerable structures of service provision. A negative consequence may also occur in terms of low quality of provided services due to lack of competence.

An alternative strategy is to redesign sparsely populated territorial settings into more distinct polycentric functional arenas – or development corridors – as primary locations for growth initiatives and key services in accordance with the guiding principles in the EU-driven ESDP (European Spatial Development Perspective) work. As mentioned earlier, Sweden has some experience of a strong spatial planning profile. The new approach is that regional partnerships are forming the point of departures instead of the central government. However, this is also associated with advantages and disadvantages. Arguments for efforts to increase internal functionality and external linkages are often related to cost aspects but may also be regarded as a broader strategy of capacity-building for better sustainability of existing activities and in order to increase the region's attractiveness for venture capital and entrepreneurs. With more concerted and concentrated actions, investment costs can be cut and new benefit options may occur as a result of an extended local networking and market penetration. This can be realised by maintaining, and even strengthening, places regarded as attractive rural idylls. Such an alternative may thus attract quite new actors to take part in development strategies.

On the negative side we find the arguments mentioned above in terms of obstacles to entrepreneurial initiatives and choice of locations for business and permanent housing all over the existing settlement system. Further, it may be anticipated that current tendencies of depopulation and reduced social policy measures could become even stronger in locations outside the prioritised nodes and linking corridors with a distinct spatial policy of this type.

In conclusion it is obvious that a reorientation of policy and planning principles will have both positive and negative consequences. However, the empirical evidences discussed in the introductory part of the paper strongly supports the introduced ideas of a more distinct spatial planning profile in future regional

policy making. It is of vital importance for the sparsely populated northern Europe to elaborate a more powerful organisational framework, which may meet a broadened variety of growth concepts rooted in R&D as well as interests from national and international entrepreneurs and investors. An analysis of new ways to deal with sustainable regional development problems in three Swedish counties (Naturvårdsverket 2003) points at the potential for reorientation of perspectives and tangible strategies comprising communication and collaboration across sectoral and administrative borders. It is also stressed that the power of such approaches is greatly dependent on strongly engaged key actors and a distinct modern political leadership. Another lesson is that plenty of time must be devoted to the process of changing ingrained opinions on how to formulate and solve regional problems.

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## Changes in population and industries in the rural areas of Finland: from analysis of administrative regions to a GIS based approach

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**Abstract:** *The statistical analysis of rural change is traditionally based on classifications of administrative regions, like municipalities or provinces. These classifications do not allow fine-grained interregional analysis of rural change. Especially in sparsely-populated countries, like Finland, the border between rural and urban areas is often fuzzy, which means that rural elements may be found within administratively urban municipalities. This paper presents a GIS-based approach for analysis of changes in rural population and industries. The data employed is based on 1 x 1 km inhabited grid cells defined by base map coordinates, allowing for a flexible analysis of rural change independent from administrative borders.*

*Keywords:* Finland, rural change, rural industries, rural definitions, GIS.

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### Introduction

The Finnish rural areas have undergone a profound change during the last decade or so. The major structural changes have been the breakdown in the numbers of people living in rural areas and in the agricultural employment, which have for a long time been in an interactive relationship. The number of active farms with more than one field hectare has fallen by 25% during Finland's membership in the European Union (1995–2003). Agrifood Research Finland predicts that the number of dairy farms will go down from 17,000 in 2003 to only 10,000 in 2010, in only 6–7 years (Niemi and Ahlstedt 2004). At the same time it was especially the secondary sector that has increased its share in rural employment. These changes are due to many internal and external pressures affecting the profitability of agriculture, but perhaps the major reasons for the development have been the deep recession in the Finnish economy at the beginning of the 1990s and the impact of membership in the European Union on agriculture since 1995.



These changes have not taken place equally in different rural areas, however, since some areas have been more successful. If we want to analyse very detailed internal changes in rural areas we come up against the problem of how to define different rural areas? This paper introduces some examples given by accurate georeferenced data for the analysis of changes within rural areas. The paper is divided into five chapters after this introduction. First we look briefly at the problems in rural area definition and then the Finnish georeferenced data will be introduced. The third and fourth chapters deal with a couple of examples on the GIS-based analyses and finally we make some concluding remarks.

### Rural area definitions

The analysis of regional change requires both relevant areal typologies for rural-urban continuum and reliable statistical data. Rural area or „rurality“ is not a precise concept as noted by several authors (see e.g. Clout 1977; Gilg 1985; Pacione 1985) but definitions are required for research and administrative purposes, like allocation of regional development funds.

The most commonly used international area classifications are those employed by the OECD and Eurostat. The OECD Project on Rural Indicators was carried out in 1994–1996 as a part of its Rural Development Programme. The project developed a ‘degree of rurality’ classification, which was based on the population densities of administrative and statistical area units, as these were regarded as providing an indicator that was sufficiently unambiguous and straightforward to calculate. Regions were classified into three types: predominantly rural, significantly rural and predominantly urbanised (OECD 1994; see also Muilu and Rusanen 2004).

The Eurostat classification speaks of ‘degrees of urbanisation’. This classification is also a tripartite one, accounting for both population density and the size of the population: densely populated areas, intermediate areas and thinly populated areas. Another classification for rural areas was proposed by the European Commission in its report *The Future of Rural Society* (1988) where the areas are classified among types based on their level of integration into the national economy and their (not exclusively physical) distance from the main centre of their region: remote areas, intermediate areas and economically integrated areas (EC 1997; Eurostat 1997).

The tripartite classifications of rural areas are employed also by Statistics Finland. In Finnish rural policy the rural triple partitioning is well established and it divides the total of 448 municipalities (2002) into sparsely populated rural areas (129 municipalities), rural core areas (179), urban-adjacent rural areas (82) and urban areas (58) (Palttila and Niemi 2003).

These classifications are adequate for most regional and rural policy purposes on the international (like EU) and national level, since they recognize that rural areas are not uniform. Remote areas require quite different rural policy measures

compared to areas located in commuting belts of growth centres, for example. The typologies do not, however, allow fine-grained interregional analysis on rural change on provincial or even municipality levels. Especially in sparsely-populated countries like Finland the border between rural and urban areas is often fuzzy, which means that rural elements may be found within administratively urban municipalities. It is interesting to note, for example, that some of the administrative cities in Finland belong even to the sparsely populated areas in the above typology, even though there are not anymore differences in the administrative status between rural and urban municipalities. This paper presents a GIS based approach for the analysis of change in rural industries, which allows for a very accurate and borderless approach to the rural-urban continuum.

### **Georeferenced data in Finland**

We mean here by the georeferenced data the data sets that are specific to geographical locations by means of base map coordinates and thus are independent of administrative boundaries. In Finland no censuses at regular intervals, e.g. ten years, have been carried out since 1987 when the population census data was compiled through direct access to more than 30 different registers for the first time. These register-based censuses have been done annually after that. Each individual is located geographically with an accuracy of 10–20 metres by means of the base map coordinates of the building designated in the person's address, enabling location and substance data to be combined in whatever manner may be required. People living in the same building like a block of flats get the same building coordinates. The coordinates of the buildings were established in connection with the "conventional" censuses of 1970, 1975, 1980 and 1985, but at that stage the data sets were not of the same quality and coverage as nowadays. This data can without doubt be called georeferenced (Statistics Finland 2003; Muilu and Rusanen 2004).

Finland has a total surface area of 338,145 km<sup>2</sup>, of which 304,473 km<sup>2</sup> (90%) is land. Correspondingly, the number of 1 x 1 km base map grid squares that were inhabited in the year 2000 was 102,658, or about a third of the land area. Thus two thirds of the country's base map grids are entirely uninhabited, in addition to which almost a half of the inhabited grid squares, 46%, have no more than five inhabitants, so that all told Finland can be regarded as extremely sparsely inhabited and the importance of the notion of rural areas can be well appreciated (Statistics Finland 2003).

It is not possible to use this data for spatial research on an individual level because of the privacy of the people and so it has to be aggregated into some regional unit. It has been noticed in previous studies that the most suitable unit for analysis of this kind of data on national level are 1 x 1 km grid cells. In most densely populated urban regions also smaller units, like 250 x 250 m, have been used.

To conclude, the GIS based approach means here the use of this unique georeferenced data available only in a few countries besides Finland. The statistical analyses were made with the SAS programme version 8.2. First the numbers and proportions of employees in different industries and by place of residence were calculated in each inhabited 1 x 1 km grid cell with no more than 100 inhabitants, which has been found to be a suitable threshold value for defining rural areas within this data (e.g. Naukkarinen et al. 1993; Muilu and Rusanen 2003). Then line charts (Figures 1–6) were made by ordering the grid cells according to their population density, from the sparsest (1 inhabitant/grid cell) to the densest (100 inh./grid cell). The number of employees in industries and the dominance of different sectors were presented on the y-axis. This simple method gives us a straightforward image of how the employment structure changes in different parts of the rural regional structure.

### The numbers of rural population

In the European context the share of rural population in Finland is still high. If we compare the rural population by the means of the classification of municipalities described above the share of sparsely populated rural areas was 10% (approx. 534,000 inhabitants) and the share of rural core areas 17% (approx. 877,000) in 2000. Urban-adjacent rural areas accounted for 16% (approx. 815,000) and the rest of the people (57%, approx. 2,928,000) lived in urban municipalities (Palttila and Niemi 2003).

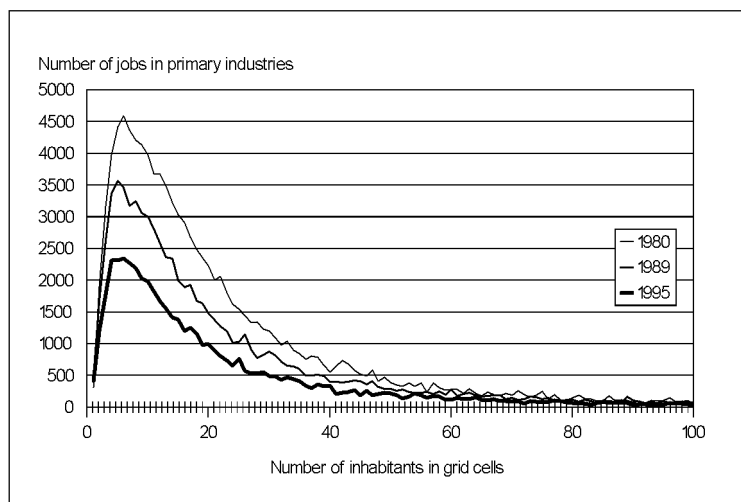
The numbers of rural people have been decreasing for a long time in Finland. The annually compiled georeferenced data allows us to analyse the short-term changes in rural areas. In our previous study we found that, whereas the total population of Finland has been increasing steadily during the course of history, the rural areas have been losing their population from the 1960s onwards. For example, between the point in time preceding the serious recession period in Finland and the instant of the recovery (1989–1997) the rural areas ( $\leq 100$  inhabitants/km<sup>2</sup>) lost 41,473 persons (–3.5%) while the total population of Finland grew by 168,096 persons (3.3%). These changes may not look so big, but it should be noticed that they took place only in just eight years (Muilu and Rusanen 2004).

### Changes in industries in rural areas

Agriculture may still be the most important form of land use in core rural areas, but this is no longer the case when its role in employment is concerned. The European Commission (1999), for example, notes that only about a sixth of all jobs are in primary sector in rural areas of Europe and that there are twice as many jobs in the secondary sector as in agriculture. In this chapter we look at some examples of figures that the Finnish georeferenced data and GIS methods enable.

### The change in the number of jobs in different industries

First we look at the numbers of jobs in different sectors of industries. As much as almost 80% of jobs in primary industries are located in grid cells with the maximum of 30 inhabitants/km<sup>2</sup>. On the other hand the most sparsely populated grid cells (1–4 inhabitants) contain only few jobs altogether, since they are mostly inhabited by old and retired people. Figure 1 also presents the dramatic change that took place between 1980 and 1995. This means that the structural change in rural areas was in full swing already before Finland's membership of the EU in 1995. The more inhabitants in grid cells, i.e. the closer to the cities, the less people were employed in primary industries (Figure 1).



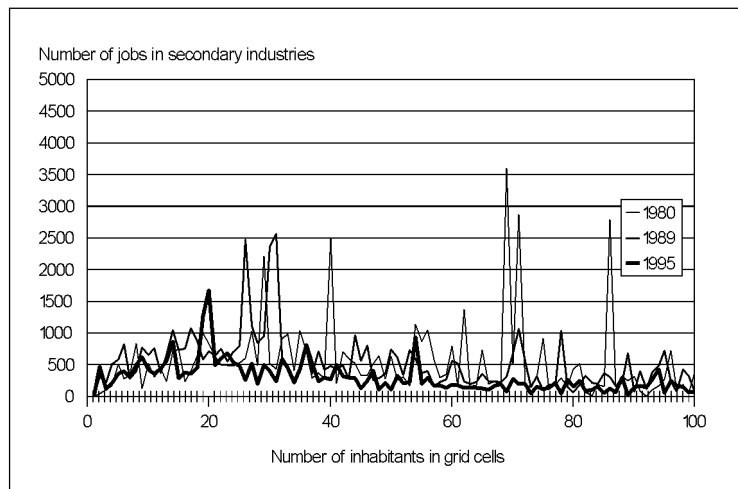
**Figure 1.** Number of jobs in primary industries by place of residence in inhabited rural areas of Finland ( $\leq 100$  inhabitants per km<sup>2</sup>) according to population density in 1980, 1989 and 1995 (Data sources: Statistics Finland, unpublished grid cell data)

Development in secondary and tertiary sectors was notably smoother during the same period. It looks as if in different rural areas in different years there have not been clear trends in the change of numbers jobs outside the primary sector. One explanation for this result is obvious: secondary and tertiary sector jobs are not especially „rural“ in character but nevertheless a certain amount of them have always been present in rural areas as a kind of auxiliary activities for rural people (Figures 2 and 3).

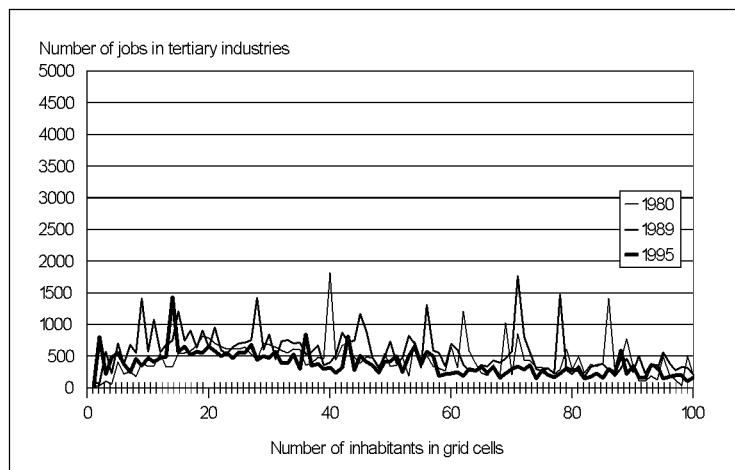
### Dominance of different industries in rural areas

Our second example shows how the dominance of different industries has changed in rural areas in Finland. Dominance means here that it was calculated from each grid cell which was the largest sector of employment for the rural population by place of residence in each year.

The dominance of different industries in all rural areas ( $\leq 100$  inhabitants/ km<sup>2</sup>) of Finland is presented in Figures 4–6. In 1989 primary industries were still



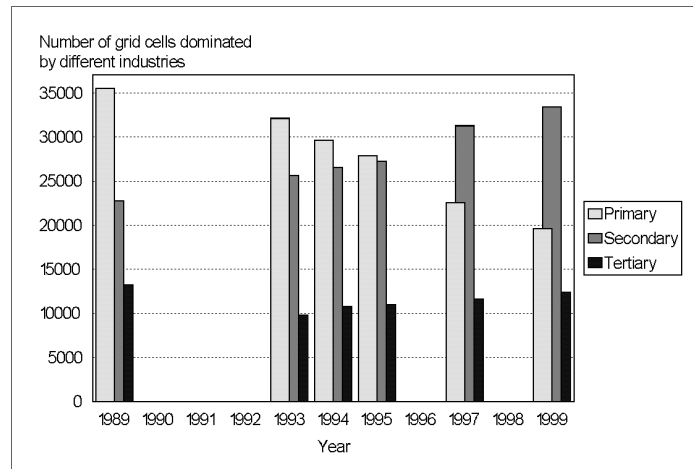
**Figure 2.** Number of jobs in secondary industries by place of residence in inhabited rural areas of Finland ( $\leq 100$  inhabitants per  $\text{km}^2$ ) according to population density in 1980, 1989 and 1995 (Data sources: Statistics Finland, unpublished grid cell data)



**Figure 3.** Number of jobs in tertiary industries by place of residence in inhabited rural areas of Finland ( $\leq 100$  inhabitants per  $\text{km}^2$ ) according to population density in 1980, 1989 and 1995 (Data sources: Statistics Finland, unpublished grid cell data)

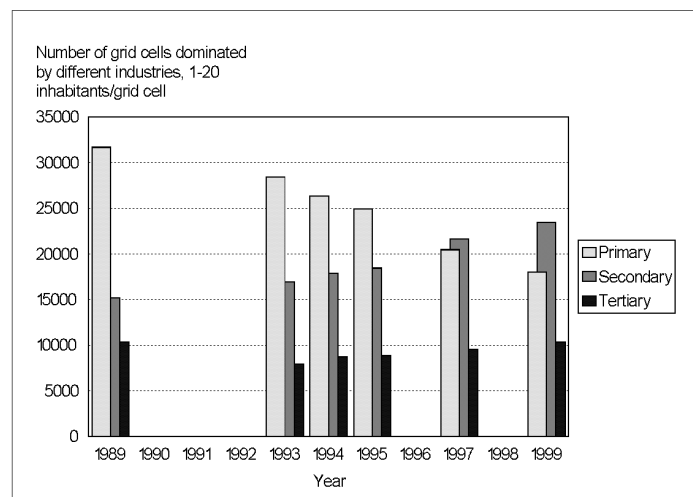
clearly the most common source of income in rural areas. Data is missing for 1990–1992 but since 1993 a rapid increase of secondary industries changed the situation dramatically. In 1995, the same year that Finland joined the European Union, the shares of primary and secondary sectors in employment were almost even and at the end of last century the tertiary sector was closing on the primary sector (Figure 4).

The change within only ten years (1989–1999) is even more dramatic if we look more closely at different rural areas. Population density classes of 1–20 inhabitants/ $\text{km}^2$  include the most sparsely populated and core rural areas, where most of

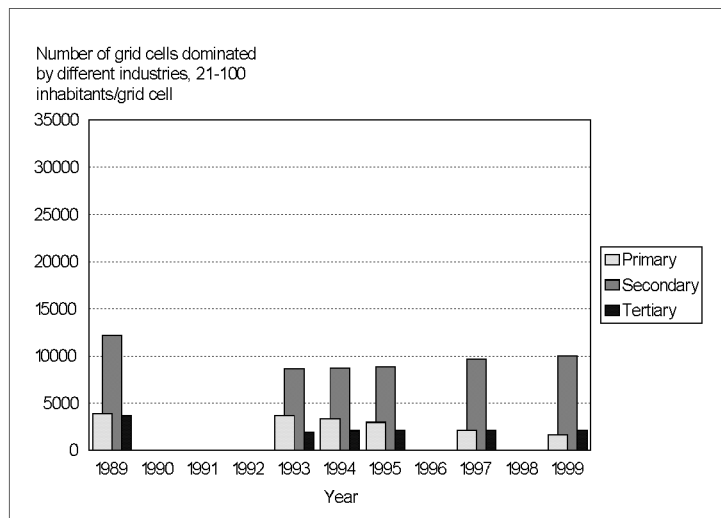


**Figure 4.** Dominance of different industries by place of residence in inhabited rural areas of Finland ( $\leq 100$  inhabitants per  $\text{km}^2$ ) according to population density in 1989–1999. Data from 1990, 1991, 1992, 1996 and 1998 were not available (Data sources: Statistics Finland, unpublished grid cell data)

the agriculture takes place, and 21–100 inhabitants/ $\text{km}^2$  are the rural areas adjacent to commuting centres. In 1989 the dominance of primary industries was very clear in the sparsely populated grid cells. The decrease has been steady after that and, in 1997, the secondary sector was the clearly dominant industry even there. It seems that, compared to the previous figure, the change from primary to tertiary dominance took place two years later (Figure 5). In the commuting belt secondary industries have for a long time been overwhelming and the primary sector has had only a minor role there (Figure 6).



**Figure 5.** Dominance of different industries by place of residence in sparsely populated rural areas of Finland ( $\leq 1$ –20 inhabitants per  $\text{km}^2$ ) according to population density in 1989–1999. Data from 1990, 1991, 1992, 1996 and 1998 were not available (Data sources: Statistics Finland, unpublished grid cell data)



**Figure 6.** Dominance of different industries by place of residence in rural areas adjacent to commuting centres of Finland ( $\leq 21\text{--}100$  inhabitants per  $\text{km}^2$ ) according to population density in 1989–1999. Data from 1990, 1991, 1992, 1996 and 1998 were not available (Data sources: Statistics Finland, unpublished grid cell data)

## Conclusions

The loss of population and jobs in primary industries have hit the most sparsely populated and core rural areas most seriously, whilst the situation in rural areas adjacent to commuting centres is substantially more optimistic. The most important finding from this study is that the primary sector no longer holds a dominant role in rural employment in any part of the rural areas of Finland. The change has been very rapid and Finland's membership in the European Union most probably accelerated this process. This is due to the fact that Finland is, in addition to its very sparse population structure, also the most northern country in the world where significant agriculture is practised and so its structure is very sensitive to external changes.

The big question for the future of the remote and sparsely populated rural areas, such as those typical for Finland, is whether local economies and labour markets will manage to find substituting jobs outside the diminishing primary sector. The figures presented in this paper show a considerable increase in the secondary and tertiary sectors in rural areas but, in the future, it is obvious that globalization and enlargement of the EU will increase competition for jobs, not only between urban areas, but also between regions and rural areas. Agrifood Research Finland predicts that the regional development in rural areas of Finland will become even more differentiated in the future, which will result in a polarized regional structure with the winning and loosing regions (Niemi and Ahlstedt 2004). This requires efficient tools for fine-grained interregional and rural analysis if we want to predict and react to this development.



Georeferenced data employed with GIS methods constitute an efficient tool for the analysis of internal structures of regions. At international and national level the tripartite (or sometimes quaternary if urban areas are included) regional classifications or typologies are sufficient for comparative studies, but as mentioned above, in sparsely populated countries and areas like those in Finland more fine-grained data methods are sometimes needed. The Finnish georeferenced data based on 1 x 1 km inhabited grid cells and defined by base map coordinates allow for flexible analysis of rural change, independent of administrative borders.

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## **Web-based functionality of Polish self-governmental units and its effectiveness in promoting the development of rural areas**

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***Abstract:** The paper presents an initial stage of a modest empirical study of the web sites run by a set of Polish self-governmental authorities of a definite level. The study, which is an on-going effort, is carried out according to the standard WAES methodology. The region, for which the study is being carried out, is characterised shortly, and the proper results are reported as seen in various aspects. The conclusions drawn refer to (1) the developments in the domain (quantity and quality); (2) the importance attached by the self-governmental units; and (3) the potential effectiveness in promoting the development of rural areas. It is shown that the local administrative authorities, even if starting with a definite delay, are effectively catching up in terms of both presence and the range of information and service provided. Although there is still quite a way to go regarding deeper functionality of the web services oriented at the development of rural areas, the current situation looks promising. The paper ends with a summary evaluation and indication of some prospective directions of work, both in web-based functionality and related research.*

***Keywords:** regional authorities, self-government, province of Masovia, Poland, internet, website functionality.*

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### **Introduction**

The paper provides an account from an initial stage of the on-going study devoted to monitoring of the websites of the local (self-governmental) authorities in one of the Polish provinces. This particular province, one of 16, into which Poland is subdivided, the province of Masovia, with the seat in the capital of Poland, Warsaw, is both largely representative for most of the Polish local conditions, and at the same time it is highly „rural“ in the traditional sense of the word, including the prevalence of agricultural function. Thus, it can be assumed that situation is, roughly, similar in the whole of the country.

The study looks at the presence of the local authority's website and at its contents and functionality, as well as other definite features, such as, e.g., updating of the contents. The widely applied WAES methodology is used for the sake of comparability with other similar studies and watchdog results.

The objective of the study is twofold. First, it is the cognitive goal of gathering information on the presence of local authorities on the web and the information as well as services they offer, and drawing conclusions concerning the character of this presence and its characteristics. Second, it is the assessment of the functionality from the point of view of promotion and facilitation of local development. The latter seems of particular importance for the rural areas, given the limited access to markets and promotion outlets, as well as information shortages, characterising these areas. Alas, the second goal can as of now only partly be attained in view of both the present stage of the study (main emphasis being still on information gathering) and the limited functionality oriented more or less explicitly at local development. Thus, the present paper will give more ample account dealing with the first of the goals, and much less so in terms of the second one.

## The province under study

As mentioned, the province under study is one of the 16 provinces (voivodships) of Poland, the province of Masovia. The capital of the province is at the same time the capital of Poland. Despite the fact that this is the „capital region“, and the largest in Poland (more than 11% of total area), it remains sufficiently representative for the large part of the country, if not for the whole of it. This is due to the specific features of the Polish urban system (flat distribution of town sizes) and the particular characteristics of the region in question. A very cursory illustration is provided in Table 1.

**Table 1.** Some characteristics of the province of Masovia against the Polish background

Characteristic	Poland: average (min and max across all 16 provinces)	Province of Masovia
Population density (persons per sq.km)	122.3 (min: 59.0; max: 384.6)	144.0
Urban population share (%)	61.8 (min: 40.5, max: 79.1)	64.6
Share of agricultural land (%)	58.7 (min: 49.7, max: 69.8)	69.8
Share of forested land (%)	28.5 (min: 20.9, max: 49.7)	22.3
Protected areas of high natural value (%)	33.1 (min: 16.4, max: 62.0)	30.1
Share of population served by wastewater treatment (%)	57.1 (min: 44.6, max: 75.8)	45.1
Unemployment rate (%)	18.1 (min: 13.9, max: 28.8)	13.9
Wages and salaries, gross (relative to Polish average)	100 (min: 83.7, max: 129.2)	129.2

Source: *Concise...* (2003).

Thus, while the province is on the average representative for Poland in terms of population density and urban population share, it also features the highest share of agricultural land among the Polish provinces. At the same time, one can suspect a distribution effect in the paradoxical juxtaposition of the province-wise highest wage and salary index as well as the lowest unemployment rate, confronted with the very low share of population served by wastewater treatment plants. (The farming character of a large part of the province can also be seen in Figure 1 of Bański 2003).

The province is composed of 42 counties („poviats“), five of them being urban counties (towns, treated as separate counties). Table 2 shows counties in a similar setting as that of Table 1, in order to illustrate internal differentiation of the province. Yet, notwithstanding this differentiation it can easily be seen that indeed the province has a largely rural character. Even the counties forming the metropolitan area of Warsaw, featuring relatively high population densities (up to 556 persons per sq. km in the county of Pruszków), show limited shares of urban population (not exceeding the average for the province in the same county of Pruszków) and high shares of agricultural land. It appears that – except for the case of Warsaw itself, where 31% of land is still agricultural – the share taken by agricultural land is mainly influenced by the share of forested land, with urbanisation and industrialisation playing marginal roles (see also Table 2).

Let us further note that in many cases the county seat is the sole urban centre of any significance in the county. The four urban counties, except for Warsaw, are a very good illustration here: in their respective „land“ counties, i.e. outside of the town itself, the shares of urban population are 3.6%, 9.5%, 20.5% and 2.3%! Thus, although for reasons of formal correctness and comparability with the results of the study, accounting for all the 42 counties, Table 2 shows the urban counties separated from their respective „land“ counties, when taken together with them they would not differ significantly from the general „rural landscape“ around. On the basis of data from Table 2 the map of Figure 1 was elaborated, illustrating this „rural landscape“ aspect. An ad hoc index  $L$  was used for this purpose, defined as follows:

$$L = \frac{(p_i - p_{MIN})}{(p_{MAX} - p_{MIN})} + \frac{(u_i - u_{MIN})}{(u_{MAX} - u_{MIN})} + \frac{(f_i - f_{MIN})}{(f_{MAX} - f_{MIN})}$$

where  $p_i$  are population densities in the counties,  $u_i$  – shares (in %) of urban population in the counties, and  $f_i$  are obtained as a sum of the % share of agricultural land and half of the share of forested land; the values  $p_{MAX}$ ,  $p_{MIN}$ ,  $u_{MAX}$ ,  $u_{MIN}$ ,  $f_{MAX}$ ,  $f_{MIN}$  corresponding to the respective maxima and minima, but at the level of entire provinces of Poland, not the counties. In this way the values of  $L$  can both fall below 0 and exceed 1. In general, the lower the value, the „more rural“ the landscape, and it can be expected that for the urban counties the values of  $L$  are well beyond 1. What, again, is important in Figure 2 is the very high share of counties with values of  $L$  below 0.

**Table 2.** The counties („poviats“) of the province of Masovia (as of 2000-2002)

County	Population density (per sq. km)	Share of urban population (%)	Share of agricultural land (%)	Share of forests (%)
Białobrzegi	54	24.1	66.6	8.8
Ciechanów	89	54.0	75.4	9.2
Garwolin	85	27.1	62.6	10.1
Gostynin	80	40.9	69.6	9.8
<i>Grodzisk Mazowiecki</i>	<i>198</i>	<i>60.2</i>	<i>73.5</i>	<i>12.8</i>
Grójec	78	33.2	77.8	8.7
Kozienice	72	30.4	57.0	13.4
<i>Legionowo</i>	<i>228</i>	<i>58.4</i>	<i>44.5</i>	<i>31.4</i>
Lipsko	54	15.6	75.3	17.2
Łosice	45	21.3	72.7	20.3
Maków Mazowiecki	47	27.0	68.2	24.5
Mińsk Mazowiecki	105	43.9	67.9	22.2
Mława	64	40.0	73.2	18.4
Nowy Dwór Mazowiecki	108	50.5	58.7	26.3
Ostrołęka-town	1925	100.0	32.2	5.5
Ostrołęka	40	3.6	62.8	30.7
Ostrów Mazowiecka	65	32.1	64.1	27.7
Otwock	183	61.8	53.5	30.2
<i>Piaseczno</i>	<i>192</i>	<i>48.2</i>	<i>61.5</i>	<i>20.3</i>
Płock-town	1486	100.0	42.2	4.5
Płock	60	9.5	72.6	16.7
Płońsk	66	30.5	76.3	13.2
Pruszków	556	62.9	65.7	10.9
Przasnysz	45	36.6	64.2	29.3
Przysucha	59	14.0	62.9	30.4
Pułtusk	62	37.4	70.3	19.0
Radom-town	2071	100.0	51.0	6.5
Radom	94	20.5	67.8	24.0
Siedlce-town	2406	100.0	41.4	6.0
Siedlce	51	2.3	74.2	17.8
Sierpc	66	34.6	78.2	13.3
Sochaczew	116	46.0	73.7	15.3
Sokolów Podlaski	54	35.1	71.8	21.4
Szydłowiec	91	29.7	59.3	32.4
<b>Warsaw</b>	<b>3258</b>	<b>100.0</b>	<b>30.5</b>	<b>13.6</b>
<i>Warsaw West</i>	<i>167</i>	<i>36.0</i>	<i>61.4</i>	<i>25.5</i>
Węgrów	58	27.6	65.7	25.5
<i>Wołomin</i>	<i>193</i>	<i>66.1</i>	<i>57.1</i>	<i>27.4</i>
Wyszków	82	37.2	57.2	33.0
Zwoleń	67	21.7	78.3	14.6
Żuromin	52	26.0	72.8	18.3
Żyrardów	142	64.0	68.3	22.3

*Italics* – counties forming (in total or in part) the metropolitan area of Warsaw

Thus, altogether, it is obvious that the province of Masovia, see at the level of its individual counties, can be regarded as a good representation of the rural regions of Poland, that is – of the majority of Polish territory, see, again, Figure 1 of Bański (2003).



Figure 1. The values of index L of non-rural character across the counties of the province of Masovia

### The presence and significance of Internet

Heilig (2003) analyses the potential impact of internet-based functionality on the income generating capacity of rural areas and rural communities. He indicates a number of domains, in which an impact from internet is expected or is actually being observed. Of special importance for the here reported study is the domain of *E-administration and online public services*, which is directly addressed,



although we will also touch upon some of the other types of internet-based activities.

The study addressed the web sites of the local administration for several reasons. First, and foremost, these services can be easily found and analysed, and this over a complete, or quasi-complete “population” of these services. Then, this allows for an adequate comparability across the “population” analysed (possibility of applying the same set of functions and criteria), in distinction from the commercial web sites, which usually stem from various background, span different ranges of services, and refer to different spatial ranges. Third, not only comparability across units is assured, but also comparability over time (evolution of functionality and quality of service), this being much more difficult to preserve in the commercial sphere (bankruptcies, profile changes, mergers,...).

Further, it is also assumed that in the Polish rural areas the internet services of the local administration are, as a whole, most developed among the local initiatives of this kind. In fact, the web sites of the local administration, mostly of the county level, are most easily found by the search engines when the name of a given area is used as (a part of) a query. Not only this, for in numerous localities in Poland it is the local administration, using also the medium of internet, tries to promote local business, tourism, and the area at large. Thereby a connection is made to other functions and domains, indicated by Heilig (2003), including, in particular, *E-marketing* or *Virtual communities*. There is also a common conviction that the socio-economic dynamics of an area would be reflected through the activity of its related internet network. Thus, the presence, contents and quality of the web-based services offered by the local authorities become an important element and indicator of the potential effectiveness and efficiency of such services for the local rural development.

### The methodology

The study was based upon the frequently applied WAES (Website Attribute Evaluation System) methodology (WAES 2001). This methodology refers to a list of simple criteria, corresponding to the features of the website evaluated. These features-criteria are formulated in such a manner as to allow, in principle, for the simple binary evaluations: YES or NO (PRESENT or ABSENT), with only few exceptions. This fact, together with quite detailed level of the criteria, and their grouping into a set of domains in such a way as to ensure their possibly balanced representation, provide for the high degree of *objectivity* of the resulting evaluation, even if it is still done „by hand“.

The checklist of the WAES method used in the study was as given below (the notions here quoted are translations from the Polish version of the method used in this case, with the „office“ denoting the respective self-governmental administration unit, whose website is under evaluation). It should be noted that this set of criteria, see, e.g. *Raport...* (2002), Kułagowski (2002) differs from the original one by five items.

**Address data** (these are organisational data, not treated as criteria):

1. Locality; 2. Commune; 3. County; 4. Name of unit; 5. E-mail address; 6. www;
7. Time of waiting for response; 8. Webmaster

*Criteria:*

**I. Clarity**

1. Structure

- 1.1. Layout (is the office the provider and editor of the website?)
- 1.2. Updating (is the contents updated sufficiently frequently, e.g. last updating done X weeks ago?)

2. Contacts

- 2.1. Regular mailing address (is it provided?)
- 2.2. Telephone numbers (are telephone numbers, and other mailing data, of the officers provided?)
- 2.3. Webmaster's e-mail address (is the e-mail of the person responsible provided?)
- 2.4. Editor's e-mail address (is the e-mail of the main editor provided?)

3. Information on the institution

- 3.1. Vision of the future (are mission/vision documents provided?)
- 3.2. Principles of functioning of the office (is timetable of functioning of departments provided?)
- 3.3. Organisational structure (is a graphical scheme of office's organisation provided?)

4. Subject-oriented information

- 4.1. Governmental addresses, links (are addresses of and links to other associated offices provided?)
- 4.2. Other links and addresses (are addresses provided of other offices, not directly associated?)
- 4.3. NGO links and addresses (are links & addresses of NGOs given as e.g. information providers?)
- 4.4. Reports, studies, regulations (are these documents provided in an easily accessible form?)
- 4.5. Archives (is there a possibility of searching in the archives for bulletins, regulations, etc.?)
- 4.6. Downloadable publications (are internal publications of the office – like protocols – available?)
- 4.7. Link or reference to Law on Information (are readers made aware of their rights?)

5. Direct contact with the citizens

- 5.1. Explanations for citizens (is information provided on current regulations, laws, studies, etc.?)
- 5.2. Instructions (are instructions & assistance provided on how to fulfil regulations?)
- 5.3. Ombudsman (are readers instructed how to appeal from the decisions of the office?)

## II. Interactivity and accessibility

1. Safety and privacy
  - 1.1. User's privacy (is the service using cookie-like applications to collect user info?)
  - 1.2. Privacy of logging (is the user required to provide any other info than e-mail address?)
  - 1.3. Safety of personal data (are personal data safeguarded in any way [triple choice; -1, 0,+1]?)
2. Contacts
  - 2.1. Webmaster's e-mail (is automatic reference to webmaster provided?)
  - 2.2. Highest officer's e-mail (is automatic reference to the highest officer provided?)
  - 2.3. Officers' e-mails (are easily accessed e-mails to several key officers provided?)
  - 2.4. Predefined communication format (is the office trying to enforce a communication format?)
  - 2.5. Chats / discussion lists / forums (are such possibilities offered for the users and officers?)
3. Information on organisation
  - 3.1. Links to (sub)units (are there direct links to sub-pages of individual units?)
  - 3.2. E-mail bulletin (is such a bulletin available?)
4. Subject-oriented information
  - 4.1. Subject-oriented links (are the addresses provided correctly linked?)
  - 4.2. Other governmental links (are such addresses correctly linked?)
  - 4.3. NGO subject-oriented links (are such addresses correctly linked?)
5. Interaction
  - 5.1. Office forms for downloading (are necessary forms & sheets downloadable?)
  - 5.2. Office forms on line (can users fill in forms on line and file them with the office?)
  - 5.3. Responding (is the electronic filing acknowledged and information on deadlines provided?)
  - 5.4. Appeal link (is the appeal procedure described in a clear and simple manner?)
  - 5.5. Language versions (are other than Polish versions available?)
  - 5.6. Graphical facility (is orientation facilitated by easily understood icons and pictograms?)
  - 5.7. Audio access (is website in some way accessible in audio form?)
  - 5.8. Simplified access (are other possibilities available of simple access – text mode etc.?)

**Evaluation:** total score is the sum of points (0-1), except for II.1.3, over all criteria.

It should be noted that the definitions of criteria provided here are just abbreviations of the ones used in the actual study, which were made sufficiently unambiguous (e.g. threshold numbers of definite items, deadlines etc.) to secure comparability across various self-governmental units evaluated. In addition, it is possible to shape the formulation of the concrete criteria according to the object and purpose of a given study, while entirely preserving the character of evaluation (i.e. first of all – keeping it possibly objective).

There are, therefore, two main domains of evaluation („Clarity“ and „Interactivity and accessibility“), subdivided into sections and then into binary criteria (YES-NO questions). The total number of criteria is 40, of which 19 make up Clarity and 21 the other domain. This almost complete balance, coupled with a distinct correspondence between numerous items in the two domains, is another device securing a possibly high degree of objectivity.

It is, then, clear that the WAES checklist allows for a comparison across websites of similar character. If doubts can arise when differences in total evaluations are small (1–2 score points), the difference of, say 10 points indicates definitely a wide gap in website quality.

### The course of the study and the results

The evaluation was carried out until now three times, at definite dates, in Spring 2003, Autumn 2003 and Spring 2004 (see Larkiewicz 2004, for more details). This allowed for the recording of the dynamics, which is quite visible through the results we report here. This dynamics, anyway, does not only concern the WAES scores, but also other aspects, like the design of the websites, which significantly changed, and, in particular, the uniformity of the websites (the increase of uniformity being due, apparently, to some institutional, if not commercial, measures). Table 3 presents the summary scores for the counties of Masovia obtained in Autumn 2003 and Spring 2004.

The average scores for Autumn 2003 (for the websites classified) and Spring 2004 were, respectively, 16.63 and 22.67 (out of the maximum of 40, let us remind), meaning a decisive progress (by roughly 15% of the overall scale in just half a year!). The non-classified websites may have been under construction, re-construction or simply not existed (the latter being most presumably the least frequent case). The counties with top five scores are marked in bold: there were six of them in Autumn 2003 and nine in Spring 2004. Likewise, there were seven counties with scores below 10 in Autumn 2003, and only one in Spring 2004. Figure 2 shows the spatial distribution of scores in Spring 2004 within even intervals of score values, demonstrating that the differentiation is by no means pronounced, and that it does not emphasise the more “urbanised” counties (see the remarks below).

Now, Table 4 shows the summary scores across the counties for individual criteria, and the changes having taken place between Autumn 2003 and Spring 2004.

**Table 3.** Summary results for the counties of Masovia for Autumn 2003 and Spring 2004

Counties	Summary scores		Counties	Summary scores	
	2003	2004		2003	2004
Białobrzegi	9	7	Płońsk	14	24
Ciechanów	13	20	Pruszków	19	24
Garwolin	<b>29</b>	<b>28</b>	Przasnysz	9	27
Gostynin	15	11	Przysucha	7	21
<i>Grodzisk Mazowiecki</i>	29	29	Pułtusk	7	17
Grójec	22	22	Radom-town	22	27
Kozienice	11	20	Radom	13	24
<i>Legionowo</i>	22	24	Siedlce-town	–	24
Lipsko	11	10	Siedlce	–	20
Łosice	8	15	Sierpc	10	<b>28</b>
Maków Mazowiecki	16	18	Sochaczew	16	24
Mińsk Mazowiecki	11	29	Sokołów Podlaski	25	24
Mława	21	22	Szydłowiec	12	22
Nowy Dwór Mazowiecki	28	28	Warsaw	<b>35</b>	<b>35</b>
Ostrołęka-town	32	32	<i>Warsaw West</i>	9	–
Ostrołęka	28	28	Węgrów	<b>28</b>	<b>30</b>
Ostrów Mazowiecka	16	26	<i>Wołomin</i>	–	<b>28</b>
<i>Otwock</i>	8	21	Wyszków	–	25
<i>Piaseczno</i>	17	–	Zwoleń	–	22
Płock-town	26	26	Żuromin	–	24
Płock	14	25	Żyrardów	–	21

Here, the progress comes out in an even more pronounced manner: there are criteria, on which progress is astounding (like +61 or +52 percentage points), while there is also a group of items, on which no progress was observed.

Obviously, the situation is the worst, on the average, in the group of criteria related to „Interaction“. This group is very important from the point of view of functionality, since it allows for active use of the service offered, rather than passive reception of information (e-mail communication being treated elsewhere, under „Contacts“, also, however, with a not too spectacular effects). Here, as well, progress is the least satisfactory.

In fact, even without comparing Tables 3 and 4 one can easily see which areas are developed as the first, which ones follow and which still require definite effort. Naturally, the first to be implemented are the items related to simple information items, even if requiring an extra effort in putting together a broad



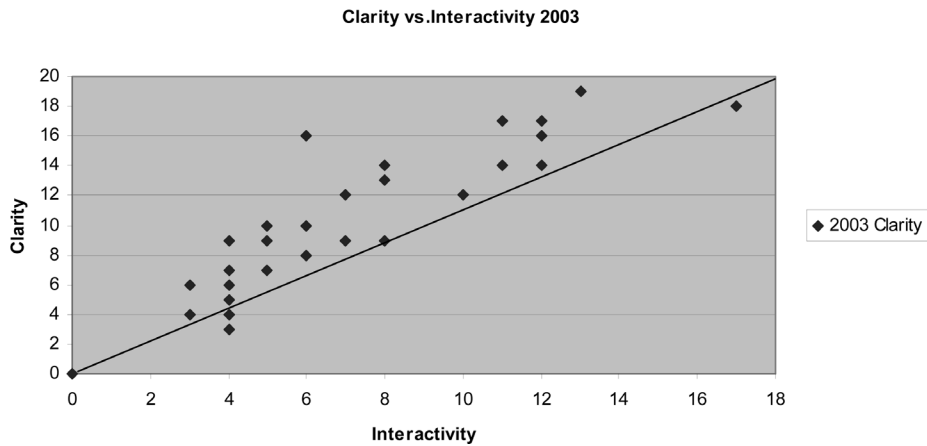


Figure 3. Clarity vs. Interactivity in 2003 for the counties of the Masovian province

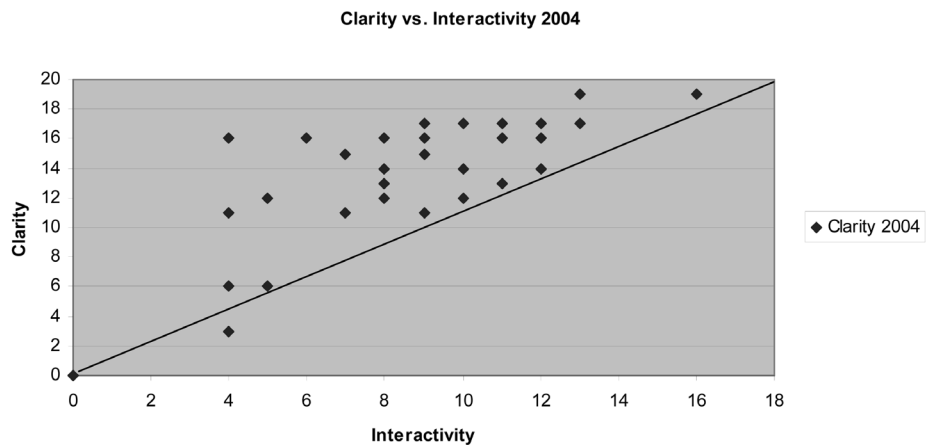


Figure 4. Clarity vs. Interactivity in 2004 for the counties of the Masovian province

On the other hand, though, as we look at the information in Table 5, we can conclude that within the set of counties not being separate towns there was no interdependence between the degree of rural character of a county and the WAES score, both in 2003 and in 2004. This, indeed, is a positive result from the point of view of (at least relative) advancement of the rural areas (see also Figure 1).

As pointed out already, it was assumed that the adequate quality of the official websites was a prerequisite for the farther-reaching functionality of these websites, especially regarding promotion of local business, local potential, human resources and the area in general. That is why the subsequent phase of the study would involve a series of additional criteria, with a working title of the domain „Territorial marketing“. The respective list of criteria is provided in the section dealing with future work.



**Table 4.** Summary scores of the counties per criterion in Autumn 2003 and Spring 2004, expressed in % of counties, for which the scores were equal 1

Criterion	Average scores			Criterion	Average scores		
	2003	2004	Change		2003	2004	Change
<b>Clarity</b>				<b>Interactivity &amp; accessibility</b>			
1. Structure				1. Safety & privacy			
1.1	82%	92%	+10 pp	1.1	84%	84%	-
1.2	58%	92%	+34 pp	1.2	82%	82%	-
2. Contacts				1.3	3%	26%	+23 pp
2.1	82%	95%	+13 pp	2. Contacts			
2.2	79%	95%	+16 pp	2.1	74%	87%	+13 pp
2.3	74%	82%	+8 pp	2.2	32%	61%	+29 pp
2.4	50%	71%	+21 pp	2.3	8%	29%	+21 pp
3. Information on institution				2.4	84%	84%	-
3.1	42%	87%	+45 pp	2.5	18%	21%	+3 pp
3.2	66%	87%	+21 pp	3. Information on institution			
3.3	32%	32%	-	3.1	42%	71%	+29 pp
4. Subject-oriented information				3.2	5%	8%	+3 pp
4.1	34%	61%	+27 pp	4. Subject-oriented information			
4.2	39%	63%	+24 pp	4.1	29%	61%	+32 pp
4.3	55%	82%	+27 pp	4.2	18%	53%	+35 pp
4.4	29%	79%	+50 pp	4.3	29%	68%	+39 pp
4.5	45%	71%	+26 pp	5. Interaction			
4.6	32%	66%	+34 pp	5.1	18%	37%	+19 pp
4.7	3%	13%	+10 pp	5.2	3%	3%	-
5. Direct contact with citizens				5.3	0%	0%	-
5.1	24%	76%	+52 pp	5.4	5%	16%	+11 pp
5.2	13%	74%	+61 pp	5.5	21%	32%	+11 pp
5.3	3%	21%	+18 pp	5.6	0%	0%	-
				5.7	3%	3%	-
				5.8	5%	5%	-

**Table 5.** Coefficient of correlation between the WAES score and three selected indicators for 37 Masovian counties not being separate towns

Correlation between the WAES score and:	population density	share of urban population	share of agricultural land
In 2003	0.098	-0.030	-0.025
In 2004	-0.026	0.089	0.013

## Conclusions

The results to date, here only superficially illustrated, indicate that

- (1) the self-governmental bodies of the county level in rural areas are definitely present on the web in Poland, though
- (2) there is a wide differentiation of the quality – and contents – of the respective services; but
- (3) there is a distinct and quick overall progress in both quality and contents of the websites, though (again)
- (4) the progress is by no means uniform and linear; yet
- (5) the present state of things and the direction and rate of evolution demonstrate that these services can be instrumental and effective in promoting local development, including, in particular, the development of rural areas.

It is envisaged that the future work will include other aspects, constituting an extension of the WAES set of criteria, aiming more directly at promotion of and information about the county services, amenities, assets, etc. (e.g. culture, history, education, health care, entrepreneurship, and so on). A list of criteria, similar to the one already presented here, has been elaborated and will be used for this purpose.

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