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Conference Paper

Settlement Patterns on the Swedish Countryside in the Emerging Knowledge Society

46th Congress of the European Regional Science Association: "Enlargement, Southern Europe and the Mediterranean", August 30th - September 3rd, 2006, Volos, Greece

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Westlund, Hans; Pichler, Wolfgang (2006) : Settlement Patterns on the Swedish Countryside in the Emerging Knowledge Society, 46th Congress of the European Regional Science Association: "Enlargement, Southern Europe and the Mediterranean", August 30th - September 3rd, 2006, Volos, Greece, European Regional Science Association (ERSA), Louvain-la-Neuve

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Paper prepared for the 46th Congress of the European Regional Science Association
Volos, Greece, August 30 – September 3, 2006

Settlement patterns on the Swedish countryside in the emerging knowledge society

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ABSTRACT:

As in other countries, urbanization and industrialization in Sweden was two sides of the same coin. To a large extent, the Swedish urbanization took place at a low level with the emergence of many small towns. The last decades, a redistribution of the urban population to bigger cities has happened. Simultaneously, the real countryside has increased its population around the big and mid-sized cities within commuting distance, but the countryside has also increased its *share* of the population in a majority of municipalities.

Westlund (2002) found that the countryside's population growth 1990-97 primarily could be explained by income and the size of the local labor market. In this paper, we examine the current trends of population development in different age groups and extend the possible explanatory variables to among others, some variables measuring local social capital.

1 Introduction

The industrial crisis of the western world during the 1970s coincided at large with a change in spatial population patterns. The large metropolises experienced population losses, while smaller places and many rural areas increased their population. This change was first observed by Beale (1975). Berry (1976) denominated this phenomenon counterurbanization. The 1980s seemed to suggest a return to the “normal” pattern in most countries but the 1990s once again showed signs of counterurbanization in a number of countries, e.g. the United States (Fuguitt and Beale 1996, Long and Nucci 1997).

Sweden seems to have followed the general pattern of other western countries. The growth of the three metropolitan areas stagnated and rural population increased in the 1970 and the general, societal trend was summarized in the concept of “The Green Wave”. The 1980s was characterized by a new wave of growth of the largest cities, a trend that continued throughout the 1990. However, during the same period rural population showed a weak increase too. Thus, the 1980s and the 1990s contained elements of both concentration and dispersion (see Westlund 2002 for a more comprehensive review).

The 1980s manifested in many ways the emergence of the knowledge economy, symbolized by e.g. a rapid growth of the IT industry and the breakthrough of the PC. Based on the new possibilities brought by new technologies of information and communication, visions emerged of a “distance-loose” society where space was dissolved and people could work or live wherever they wanted. However, these visions were countered by claims that the new information economy (or knowledge economy) demanded more personal meetings and hence stronger concentration of the new economic activities. In line with this argument, the knowledge economy would bring an even stronger concentration of its core activities than the manufacturing-industrial society did.

Starting from these contradicting trends – dissolved space through new technologies and increased concentration due to new types of activities – this paper investigates the population development of the Swedish countryside during the period 1998-2004. This study is a follow-up to Westlund (2002) who treated the period 1990-1997. A summary of the findings of that study is found in Section 2. Section 3 explains the methods used and the definition of countryside used in Sweden and the other Nordic countries. Section 4 describes the actual population development and Section 5 contains a statistical analysis of factors influencing countryside’s population development in different types of municipalities. Section 6 contains some concluding remarks on how the results can be interpreted from the general perspective of the knowledge economy’s continued growth.

2 A Summary of Earlier Findings

Westlund (2002) analyzed the population changes in non-metropolitan Sweden 1990-97. The most important findings can be summarized in the following points:

- The metropolitan regions had the by far highest population increase (+7.45%) but the non-metropolitan municipalities also increased their

population (+1.08%).

- When each non-metropolitan municipality was divided in centers and countryside, the countryside on average showed a higher percentage population increase than the centers. When the centers were divided in head center and other, smaller centers, the other centers on average showed population decline. The increase of the countryside was strongest in municipalities surrounding the metropolises and in municipalities being regional centers.
- The positive rural population development was concentrated to the countryside surrounding the metropolises and the regional centers. When the non-metropolitan municipalities were divided according to characteristics, it was the countryside of the metropolitan-adjacent municipalities and the urban municipalities that showed population increase (+8.44% and +5.86% respectively). The countryside of more accessible rural municipalities and peripheral municipalities showed population decreases (-0.43% and -4.85% respectively).
- When population changes were broken down by age groups, population growth in rural areas was based on increase of population in the age-intervals 30-64 and 0-15. Young people in the 15-29 group become fewer in both rural areas and population centers. Pensioners diminished in numbers in sparsely populated areas but increased in population centers. Sparsely populated areas became younger and population centers, especially smaller ones, older.
- The statistical analysis showed that the most important factors on municipality level behind the rural population development were the size of the local labor market, average incomes and average real estate assessments. These findings coincide with the fact that rural population growth was concentrated around metropolitan areas and regional centers.
- An attempt to assess the importance of local social capital, measured in number of village development groups per capita did not show any significant correlations to population development. This was interpreted as that the forming of development groups could be a dependent variable of negative population development.

3 Definitions and Methods

In contrast to many other nations, the Nordic countries have a generous statistical definition of population centers: they must just have at least 200 inhabitants and a density such that there are not more than 200 meters between the houses. Everything which does not constitute a population centre is defined as countryside. As most other countries have definitions in which a population center has many times more inhabitants, the population of the Swedish countryside is underestimated by an international comparison.

In this study the designations “countryside”, “rural area” and “outside population centers” are used as synonymous terms. Data on the populations of population centers and sparsely populated areas are published by SCB (Statistics Sweden, the Central Bureau of Statistics) every five years. Changes in settlement patterns of

population centers are scrutinized at the same time. The revisions normally result in the redefinition as "countryside" of a number of localities whose populations have declined to fewer than 200 inhabitants, and the redefinition from "countryside" to "population centre" of built-up areas which have increased to more than 200 inhabitants. As well as this, the demarcation lines of population centers are altered if sufficient new settlement has taken place outside the population centre as previously demarcated, i.e. if an enough dense urban sprawl has occurred.

Redefinitions of population centers create certain problems when making comparisons over time. Theoretically speaking, it is possible for an increase of only a single inhabitant each in one or more districts to lead to their being reclassified from sparsely populated to population centre, which in one of the smaller municipalities may bring about a greatly increased 'degree of urbanization'. A decrease of a single inhabitant in a population centre on the margin can produce converse effects. Likewise an increased density of settlement amounting to one or a few buildings in the 'right' place outside a population centre can lead to new areas being brought inside the demarcation line of the population centre, thus ceasing, by definition, to be sparsely populated.

To try to minimize these 'margin problems', this study is based on the database compiled by the National Rural Development Agency (Glesbygdsverket) and containing data on population etc per kilometer square in Sweden. On the basis of population centre demarcation lines of 2000, the kilometer squares included in the population centre and a 'buffer zone' of one additional kilometer around it have been counted as population centre, while other settlement constitutes sparsely populated areas.¹ In this way the population within the same geographical surface has been measured in 1998 and 2004. It should be noted that this is not a completely ideal procedure either. Even though the buffer zone probably manages to capture most of the population centre growth which took place, it is not impossible that increased concentration of settlement outside the buffer zones may have signified the creation of new population centers. However, only a few such examples seem to have occurred during the period.

Population centers have been divided into two groups: the municipality centers and other population centers within the municipality. A few small municipalities have only a single population centre, viz. the municipality centre.

The 246 non-metropolitan municipalities (2004) are grouped in four categories in accordance with the classification used by the Swedish National Agency for Rural Development.²

4 The Actual Population Development

As shown in table 1, the non-metropolitan population of Sweden 2004 totaled almost 6 million of Sweden's 9 million inhabitants. Of these close to 2.3 million

¹ It should be observed that this way of constructing fixed borders for the population centers makes the definition of countryside still narrower in an international comparison.

² *Metropolitan-adjacent municipalities* (N=37) directly bordering to one of the metropolitan regions. *Urban municipalities* (N=52) where >70% of the population lives in centres (with >3000 inhabitants). This group is mainly composed of regional centres and their surrounding districts. *Urban-close rural municipalities* (N=132) municipalities with >30% of their population living outside centres but <30% of the population having >45 minutes journey by car to a centre. They are situated all over Sweden, with the exception of the most sparsely populated peripheral areas. *Peripheral municipalities* (21) with >30% of their population living in areas with >45 minutes journey by car to a centre (with >3000 inhabitants).

were living in the largest municipality category, the city-close rural municipalities. The urban and the metropolitan-adjacent municipalities had 1.9 and 1.5 million inhabitants respectively, while not more than 147 thousand were living in the 21 peripheral municipalities.

A majority of the non-metropolitan population were living in the municipality centers, while the other centers had a somewhat larger population than the countryside. The countryside's share of the population in all municipality types was 19.7%, while it was 45.1% in the peripheral municipalities.

Table 1. Population in the Swedish non-metropolitan municipalities 2004, divided in type of municipality and part of municipality.

Type of municipality and number (N)	Part of municipality			SUM	Countryside's share %
	Municipality center	Other centers	Countryside		
Metropolitan-adjacent (37)	1.009.064	298.191	254.706	1.561.961	16.3
Urban (52)	1.315.958	393.914	244.724	1.954.596	12.5
City-close rural municipality (132)	1.082.033	602.302	608.958	2.293.293	26.6
Peripheral (21)	44.806	36.038	66.480	147.324	45.1
All municipalities (246)	3.451.861	1.330.445	1.174.868	5.957.174	19.7

Source: Glesbygdsverket.

Note: Four municipalities are not included in the subgroups due to outliers.

Table 2. Percentage population changes 1990-1997, 1998-2004 and 1990-2004.

Year and type of municipality	Part of Municipality		
	Municipality center	Other centers	Countryside
1990-97			
Metropolitan-adjacent	3.49	3.28	6.66
Urban	2.63	-0.79	4.44
City-close rural municipality	-0.19	-3.16	-0.77
Peripheral	-4.56	-4.50	-5.05
Total	1.84	-1.18	1.43
1998-2004			
Metropolitan-adjacent	3.43	2.65	4.37
Urban	1.39	-0.21	0.01
City-close rural municipality	-0.76	-2.91	-3.21
Peripheral	-6.10	-5.56	-7.71
Total	1.18	-0.99	-1.27
1990-2004			
Metropolitan-adjacent	7.37	5.79	11.59
Urban	3.74	-1.18	3.75
City-close rural municipality	-1.51	-7.01	-4.57
Peripheral	-11.08	-11.41	-13.67
Total	2.82	-2.81	-0.37

Source: Glesbygdsverket.

The percentage population changes in the four municipality types and the three parts of the municipalities are shown in Table 2. The upper part of the table shows

the changes 1990-97, i.e. the period of the former study, summarized in Section 2.³ The middle part shows corresponding changes 1998-2004 and the bottom part shows the whole period 1990-2004.

A first observation is that population increase in the non-metropolitan municipalities slowed down in the period studied in this paper (1998-2004) compared with the former period. Both the other centers and the countryside lost population. However, the increase in the municipality centers, containing the greater part of the population meant a total positive value. A second observation is that the former slight increase of countryside's population was replaced by a slight decrease. A third observation is that it is the countryside of the metropolitan-adjacent municipalities that experiences expansion in both periods, while the rural areas of the urban municipalities, which previously expanded, stagnated during the second period. The peripheral municipalities' countryside had the biggest losses, but in these municipalities, the centers had almost as big losses.

5 Statistical Analysis

Based on summaries of international research by Kontuly (1998) partly tested in Westlund (2002) and the theory on civil society's social capital (Putnam 1993, 2000) nine explanatory variables were selected for stepwise regression analyses. Other variables were tested in a pre-selection process but none of them could be used - either due to too poor measuring standards or due to that the variables did not fit the scale of the analysis. This reflects a major dilemma faced by many studies of social capital: the lack of usable measures of social capital, in particular on regional and local levels. The variables used in this analysis consist of two groups:

- Variables measuring socio-economic conditions of the municipalities. The underlying hypothesis behind using these variables is that certain strata of the populations desire countryside living and that good socioeconomic conditions makes it possible to realize these desires.⁴
- Variables measuring civil society's social capital in the municipalities. In the view of Putnam (1993) this form of social capital can be defined as "features of social organization, such as networks, norms, and trust, that facilitate coordination and cooperation for mutual benefit". The underlying hypotheses are that a civil society with a strong social capital is attractive to people and that the civil society Putnam describes in general is stronger in rural areas.⁵

Along with these types of variables, we also use rural population change in the previous period as an explanatory variable. Variables 2-6 belong to the socioeconomic group and variables 7-10 are measures of civil society's social

³ However, as the former study was based on the population centers' borders of 1990 and the present study is based on the year 2000's borders, the values are not wholly identical.

⁴ This hypothesis is not a variation of the "gentrification hypothesis" according to which there is a rich, new, upper middle class "gentry" moving out from cities to the countryside. Instead, our hypothesis says that the better socioeconomic conditions, the larger is the proportion of people who can live on the countryside, given that the preference for rural living is equally distributed within the population.

⁵ Putnam's view that strong social capital is entirely positive for a community has been strongly criticized (see e.g. Portes 1998, Westlund and Bolton 2003). Albeit we agree in much of the criticism, we here want to test the explanation value of Putnam's arguments on this problem.

capital.

1. Rural population change in the previous period (1990-1997). The use of this variable is based on the assumption that there is continuity in population change, i.e. that rural areas which increase, continue to increase and rural areas which experience population losses continue to do so.
2. The size of the local labor market is a measure of accessibility, which in general should facilitate for people with rural living preferences to stay on the countryside or move there and work in an urban center. This variable implies the existence of preferences for rural living.
3. The average real estate assessment in the municipalities is a measure of supply and demand on the housing market. It can be assumed that higher real estate values are a measure of higher demand for rural housing and thus reflect population increase.
4. The average income from employment measures the potential for people with rural living preferences to realize these preferences. This variable implies the existence of preferences for rural living as well.
5. The number of firms per capita is a measure of the business structure and of entrepreneurial activity. Like the measures of the local labor market and incomes, this variable can be considered as a measure of economic development level, which, if preferences for rural living exist, makes it easier to realize these preferences.
6. Educational level, measured in the share of population with university education, is a socio-economic measure in line with the four measures above, which also presupposes preferences for rural living in order to have an impact on rural population.
7. Participation per capita in adult study circles is one of the four measures of civil society's social capital. According to the hypothesis, participation in adult study circles is an expression of civility which creates an attractive community.
8. Electoral participation is another measure of civility. Engaged citizens are presupposed to form a pleasant community where people want to live.
9. The number of village development groups per capita measures the rural population's level of activity for developing the countryside and it can be assumed that their activities make rural living more attractive. However, as stated in Westlund (2002) these groups are often started as a reaction to negative population change, which means that they can be regarded also as a dependent variable negatively coupled to changes in population.
10. The number of chorus singers per capita is one of the classic variables in Putnam's (1993) study of civility, democracy and regional development in Italy. As we have got access to this figure, we use it here to test its relevance for rural population development in Sweden.

After a preliminary test, two variables were omitted: participation in adult study circles and the number of village development groups per capita. Both these variables had consistently negative signs. Obviously, study circles *per se* cannot be taken as a measure of civil engagement which increases a community's

attractiveness. Instead, participation in study circles seems to vary with the decline of communities. The same seem to be the case for village development groups. Principally, both these variables appear to be dependent on population changes, instead of having an impact on them. This was confirmed by a correlation analysis which showed statistically significant negative correlation (0.01 level) with population development the previous period (see Appendix).

Table 3 shows the results of the stepwise regression analyses for all non-metropolitan municipalities and the four sub-groups. All the significant variables but one (see below) show the expected, positive signs. Among the non-significant variables there are some with a negative sign. The most legible example is the *number of firms per capita*, which is significant with a positive sign for the whole population of municipalities but has a negative sign (non-significant) in three of the subgroups. This might indicate that this variable not only can be considered as a measure of expansion. In declining regions, starting a firm can be a reaction on unemployment and thus an expression of negative development in the region (see e.g. Audretsch et al. 2005)

Table 3. Results of stepwise regression analyses between countryside's percentage population changes 1998-2004 and explanatory variables, in all non-metropolitan municipalities and in the four subgroups.

Coefficients	Total	Metropolitan-adjacent municipalities	Urban municipalities	City-close rural municipalities	Peripheral municipalities
	n=245	n=37	n=52	n=132	n=21
(Constant)	-45,184*** (-5.141)	7.048** (2.621)	-113.890*** (-3.290)	-9.070*** (-5.371)	-60.487*** (-3.570)
Rural population change 1990-97	0.124*** (2.714)	0.393*** (9.830)	-0.046 (-0.357)	0.314*** (4.044)	0.206 (1.365)
Population in local labor market 1998	0.023*** (4.049)	0.018*** (2.568)	0.260 (1.605)	0.049 (0.601)	0.130 (0.745)
Average real estate assessment in countryside 1998	0.009** (1.994)	-0.036*** (-5.830)	0.031*** (3.239)	0.018*** (3.996)	0.210 (1.071)
Average income from employment 1998	0.224*** (4.253)	0.051 (0.351)	0.067 (0.628)	0.059 (0.760)	0.373** (2.547)
Number of firms per capita 1995	0.111*** (2.829)	-0.062 (-0.681)	-0.178 (-1.511)	0.060 (0.795)	-0.178 (-1.188)
Educational level 1998	0.011 (0.159)	0.334** (2.043)	-0.098 (-0.511)	-0.072 (-0.757)	0.051 (0.282)
Electoral participation, national parliament 1998	0.017 (0.325)	-0.078 (-0.879)	1.236*** (2.837)	0.005 (0.065)	-0.181 (-1.033)
Chorus singers per capita 1998	0.041 (0.774)	0.092 (1.092)	-0.106 (-0.916)	-0.015 (-0.203)	0.416*** (4.648)
R square	0.453	0.787	0.353	0.348	0.581
Adj. R square	0.442	0.761	0.327	0.338	0.537
ANOVA F	39.751	30.493	13.660	34.657	13.167

*** sign. 0.01; ** sign. 0.05

Note: Only the significant, bold-marked variables contribute to R square in the stepwise regressions.

Regarding the different groups of municipalities, the model's by far highest R square is shown for the metropolitan-adjacent municipalities, followed by the

peripheral municipalities. The urban and the city-close rural municipalities had the lowest R square. A possible interpretation is that the two latter groups are more heterogeneous compared with the first two.

When it comes to the different variables, *countryside's average real estate assessment* is significant in all municipality types except the peripheral ones. However, the variable had a negative sign for the metropolitan-adjacent municipalities. This might be an indication of a “crowding out”-effect in this municipality type, i.e. that metropolitan inhabitants are seeking a less expensive living outside the centers.

Rural population change in the previous period is significant for the all municipalities and for two of the subgroups. For the group with the smallest share of rural population, i.e. the urban municipalities, it has a negative sign, but is very insignificant. The variable is strongly correlated with several others of the socioeconomic variables and this probably explains why it lacks explanatory value for the urban municipalities. The size of the *population in the local labor market* and *average income from employment* is significant for all the municipalities and for one of the subgroups. The remaining variables are significant in one case each. The *number of firms per capita* is discussed above. It might be surprising that *educational level* is significant only in one case. However, this variable is strongly correlated to several of the other variables and loses its explanatory power in combination with them. This holds also for *electoral participation*.

One of the most interesting results is that for *chorus singers per capita*. This expression of what Putnam (1993, 2000) denominates “civicness”, is insignificant and shows both positive and negative signs for four of the groups. However, in the peripheral municipalities the variable is highly significant. This indicates that the social capital having an impact on a region's development might be of different types in different types of regions. The number of chorus singers seems to express features of the social capital being positive for the countryside of peripheral municipalities. It is highly probable that other types of social capital have a positive impact in other municipality types – albeit we do not have measures of these social capitals.

Concerning the two types of variables, the socioeconomic variables in general show a high degree of significant results. In the cases where some of them lack significance, this seems to be caused by multicollinearity. However, one of the socioeconomic variables deviates from the others – the number of firms per capita, which is negatively correlated to the other socioeconomic variables and to the rural population development. We have already concluded that this variable, depending on the circumstances, might be an expression of negative regional development.

The variables aimed at measuring civil society's social capital were much less successful in explaining rural population change. A preliminary analysis showed that the two of the variables were non-independent (study circle participation and village development groups). Of the two remaining ones, electoral participation was positively correlated with rural population development, but also with several of the socioeconomic variables, a fact that made the variable insignificant in most of the regressions. The significance of chorus singers for the peripheral municipalities, but not for other municipality types, indicates that the relevance of different social capital variables might differ between municipality types. In this perspective, the fact that we have not found any significant social capital variables

for the other municipality types illustrates the problems in finding good quantitative measures of local social capital.

6 Concluding Remarks

This paper has shown that several general tendencies in the rural population development of non-metropolitan Sweden have remained stable between the current period of investigation (1998-2004) and the previous (1990-1997). Rural population development was most positive in the metropolitan-adjacent municipalities. Socioeconomic variables, like the size of the local labor market, average real estate assessments and average incomes were among the strongest explanatory variables, beside previous period's population change. However, an average small increase of rural population in the former period was replaced with a small decrease in the latter period.

The former period of study was characterized by a financial and industrial crisis while the latter period was dominated by expansion of certain sectors of the knowledge economy (e.g. information and communication technology, media, etc). Can these differences between the periods be connected to the differences in rural population change?

In the introduction we summarized the two contradicting hypotheses on the impact of the knowledge society and its new technologies on spatial population patterns. If we watch the aggregated figures, the development of the first period gave some support for the dispersion hypothesis while the second period gave some support for the concentration hypothesis. However, if we look at the spatial pattern of both periods, i.e. in what municipality types the countryside increased and decreased, the concentration hypothesis is supported. The rural growth in the metropolitan-adjacent municipalities seems to be a part of a general growth in these regions.

This conclusion means challenges for policies aiming at strengthening the rural areas of municipalities outside the metropolitan and metropolitan-adjacent regions. Increasing the size of the local labor markets ("region-enlargement") through improvements of transportation infrastructure and public transportation is already one method applied.

After 40 years of regional policies in Sweden, a growing tendency seems to be an increased skepticism towards top-down solutions. There is a common understanding on that central policies cannot break the negative trend in large parts of the countryside. The remaining possibility for these areas is thus to take own initiatives for their survival and to gather support and resources among local actors and actors on other levels. The local social capital is probably of great importance for the emergence and success of such initiatives. The results of this study indicate that different features of social capital might be important in different types of regions. Therefore, building, maintenance and renewal of local social capital should be an important policy issue in all types of localities.

Finally, this study has confirmed a well-known fact in studies of social capital: the shortage of usable measures of social capital in the official statistics, in particular on regional and local levels.

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Appendix

Correlation matrix between the variables tested in the analysis

		Rural population change, 1998-2004	Rural population change, 1990-1997	Average income from employment, 1998	Avg. real state assessments, 1998, mean averages	Number of firms per 1000, 1995	Higher educational level, 1998	Village development groups per 1000, 1996	Chorus singers per 1000, 1998	Participation study circels 1998 per 1000	Electoral participation, nat. parliament 1998	Pop. in local labor market, 1998
Rural population change, 1998-2004	Pearson Correlation Sig. (2-tailed)	1	0,537** 0,000	0,521** 0,000	0,533** 0,000	-0,149* 0,019	0,442** 0,000	-0,466** 0,000	-0,097 0,130	-0,366** 0,000	0,170** 0,007	0,522** 0,000
Rural population change, 1990-1997	Pearson Correlation Sig. (2-tailed)		1	0,638** 0,000	0,554** 0,000	-0,258** 0,000	0,406** 0,000	-0,321** 0,000	-0,225** 0,000	-0,255** 0,000	0,101 0,112	0,428** 0,000
Average income from employment, 1998	Pearson Correlation Sig. (2-tailed)			1	0,493** 0,000	-0,607** 0,000	0,492** 0,000	-0,421** 0,000	-0,325** 0,000	-0,147* 0,021	0,345** 0,000	0,415** 0,000
Avg. real state assessments, 1998, mean averages	Pearson Correlation Sig. (2-tailed)				1	-0,166** 0,009	0,711** 0,000	-0,530** 0,000	-0,089 0,162	-0,275** 0,000	0,177** 0,005	0,626** 0,000
Number of firms per 1000, 1995	Pearson Correlation Sig. (2-tailed)					1	-0,230** 0,000	0,328** 0,000	0,394** 0,000	0,020 0,748	-0,183** 0,004	-0,194** 0,002
Higher educational level, 1998	Pearson Correlation Sig. (2-tailed)						1	-0,266** 0,000	-0,116 0,068	-0,064 0,311	0,282** 0,000	0,553** 0,000
Village development groups per 1000, 1996	Pearson Correlation Sig. (2-tailed)							1	0,039 0,542	0,477** 0,000	-0,160* 0,012	-0,324** 0,000
Chorus singers per 1000, 1998	Pearson Correlation Sig. (2-tailed)								1	-0,067 0,294	0,118 0,063	-0,142* 0,026
Participation study circels 1998 per 1000	Pearson Correlation Sig. (2-tailed)									1	0,060 0,349	-0,139* 0,029
Electoral participation, nat. parliament 1998	Pearson Correlation Sig. (2-tailed)										1	0,112 0,078
Pop. in local labor market, 1998	Pearson Correlation Sig. (2-tailed)											1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).