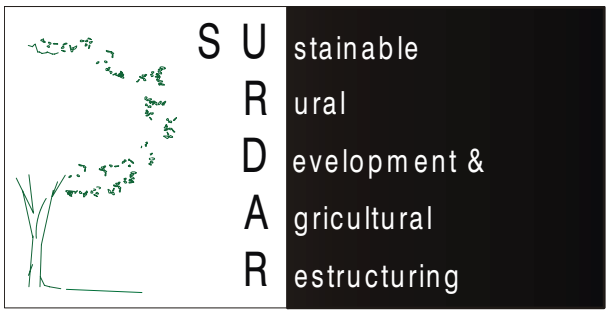

EU Expansion and the Urban-Rural Dichotomy

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1. Introduction

From its earliest days, the EU has declared a commitment to the structural improvement of agriculture to run in tandem with its price and market policies (European Commission, 1997). Originally, this task was approached in a sectorally delineated manner although from 1975 onwards, with the passage of the Less Favoured Areas Directive (Dir 268/75/EEC), territorial elements gradually began to be adopted. The momentum increased in the light of the accessions of Portugal and Spain in 1986, while the Single European Act of the same year enshrined economic and social cohesion in law. The Maastricht Treaty of 1992 made the aim of supporting non-agricultural rural development formal and explicit and, with the publication of *Agenda 2000* in 1997, rural development was to become 'the second pillar of the CAP' (European Commission, 1999).[1] Furthermore, the LEADER programmes have emphasised local partnerships and a 'bottom up' approach to policy although the success of their interventions have usually been influenced by the prevailing degree of devolution of competence.

The forthcoming enlargement of the Union to embrace numerous ex-communist states to the east of its current borders will provide a stern test of all aspects of a policy that has as yet failed to achieve many of its objectives, even within its current borders (Ingham and Ingham, 2002; El-Agraa, 2001). Having set it itself resolutely against extending farm direct income payments to newly acceding states, the Commission has recently capitulated and is proposing to phase in such aid to new member states, with parity to be achieved by 2013 (CEC, 2002: 6). Of itself, this might be expected to slow the pace of the necessary agricultural restructuring in the applicant and new member countries. At the same time, *Agenda 2000* recognised the additional strain that enlargement would impose on the priority policy goal of securing economic and social cohesion. To this end, it predicted that 30 per cent of total structural funding would be devoted to enlargement by the end of budget period 2000-2006 and recognised that substantial investments would be needed in the areas of agricultural restructuring and rural society, amongst others, within the applicant countries. This overview is alarmingly brief, but many of the agricultural and rural policy ambitions underlying the goals identified in it are extremely ambitious in nature, particularly as applied to the applicant countries. Mindful of this, the authors of the present paper have secured DFID funding for a three-year project that is to examine sustainable rural development and agricultural restructuring in Poland, one of the aspirant members in which they appear to be at their most problematic.

Before outlining the ambitions of the project, however, it is important to highlight the conceptual difficulties that any such piece of research must confront, but be most unlikely to resolve. First, the notion of economic and social cohesion has no precise meaning. It is certainly about disparities, but perhaps can only be defined as the amount of difference that is politically and socially acceptable. As such, it is almost certainly a dynamic target (Ingham *et al*., 2002). Second, development - and even more its sustainable derivative - is multi-faceted and it would be difficult to secure agreement on all of the elements that it might encompass, even if it is possible to secure general acceptance that it extends beyond deceptively simple economic magnitudes.[2] Third, the existence of social capital is now frequently accorded a central role in the development process, but again lacks precise meaning. Indeed, the notion is at risk of being circular: that milieu which co-exists with development is a social asset. The fourth and fifth difficulties relate specifically to rural development. When is agricultural restructuring complete or sufficient? Finally, but by no means

least, just what is meant by rural? Some of these issues will be taken a little further below.

The forthcoming research will examine Polish rural development and agricultural restructuring in the light of EU accession and it aims to produce an audit of gminas that would be used to derive a set of indicators to assist in the design, targeting and monitoring of appropriate policies. Assimilation of Poland into the EU will not be straightforward and the archaic structure of the agricultural sector represents one of the major unresolved issues. To a greater or lesser extent, its solution will be a fiscal matter. However, the EU is committed to budgetary ceilings upon enlargement, not least because current members are unwilling to see their contributions increase as a consequence. CEE governments on the other hand do not have the necessary funds to sort out their own problems and their conditions of entry, which envisage that they will eventually join the single currency, preclude the use of high levels of deficit financing. Despite the flow of pre-accession funds from Brussels, and the promise of access to the major EU funding programmes upon accession, the available monies will not be sufficient to address all of the rural/agricultural problems in Poland. It is therefore essential that funds are directed to their best use and the project aims to identify those gminas that have been particularly successful in their pursuit of rural development, to determine what factors lie behind this success and to ascertain what transferable lessons emerge for other localities. This much, at least, must be achieved if economic and social cohesion is to have any real meaning.

In recognition of the fact that the path to sustainable development is multidimensional, the work to be undertaken consists of a number of complementary activities. First, data analyses will be conducted at three levels – territorial (gmina), sectoral (agriculture) and factoral (the labour market) - with the aim of identifying the distribution of development relevant phenomena and the influences upon them. Gmina performance, structure and potential will be analysed in order to provide a characterisation of Polish rural communities and a comparison with urban localities. The expectation is that this work will identify patterns of multiple deprivation and the impact of these on performance will be examined.

Analyses of both the 1996 Agricultural Census and its successor, which is due to be conducted in 2002, will provide a clearer identification of what types of farm and household, in which locations, have been adapting to changed market circumstances. This it is hoped will assist in the elimination of the deadweight loss so often associated with agricultural aid programmes. In addition, detailed scrutiny of the division of working time between farm and non-farm activities will enhance current understanding of the rural diversification challenge. While agricultural restructuring is essential in order to achieve this goal, it is desirable that it is not accompanied by significant migration or unemployment and the labour market analyses to be undertaken will be directed towards the identification of policies that will minimise these affects.

To complement the work described above, two questionnaire studies will be conducted. A survey of gmina level governments will focus upon local development strategies and the returns should permit the differentiation of communities according to their characteristics, levels of government competence and apparent levels of dynamism, success and potential. The second survey will target foreign firms that have either invested in Poland or have considered so doing. The returns will be analysed in order to establish the conditions that gminas need to satisfy in order to be viable competitors in the market for inward investment. These two studies will be extended in the qualitative stage of the research, which will involve fieldwork within

rural gminas with contrasting development trajectories. It is anticipated that these will cast useful light upon the complex notions of absorptive capacity and social capital, the role of local actors in proposing and implementing change, the nature and accessibility of external assistance for development, the instruments employed in enacting reform and the institutions involved in these activities. Combined with desk-based research on the localities studied, these will provide comprehensive insights into the local development process and the constraints upon it.

Section 6 of this paper presents an introduction to one of the methodologies that the project will employ to attempt to distinguish between the rural communities and to attempt to identify those with the most pressing development handicaps. Prior to turning the spotlight onto Poland, however, the next four sections of the paper introduce three more general topics that will of necessity have to inform the specific work undertaken on the project in the next three years. The first of these, considered in Section 2, is the question of what is meant by development, particularly as that concept is interpreted in the context of sustainable rural development. In Section 3, attention is turned to a discussion of what is actually meant by the term rural: an all too easy question, but one with an elusive definitive answer. This is followed in Sections 4 and 5 by a preliminary overview of some aspects of measured rural disadvantage within the EU-15, the CEE-10 and an artificial construct that would encompass just those two blocs of countries.

2. What is Sustainable Development?

However development is defined, it must first and foremost be recognised as a long-term endeavour and, since the Rio Declaration and the publication of *Agenda 21* (UNCED, 1992), is invariably associated with the concept of sustainability. The marriage has resulted in the multidimensional notion of sustainable development that encompasses economic, social and ecological objectives. There are, however, both important synergies and potential conflicts between the component elements of the whole. Strengthening the economic viability of rural areas provides the basis for preserving their social and environmental functions but, when the ends compete, it should not be pursued regardless. Striking an appropriate balance between conflicting ends will involve acts of political choice. The European Spatial Development Perspective (ESDP), approved at Potsdam in 1999, aims to ensure balanced and sustainable development of the territory of the EU and calls for integrated and diversified rural development with the ultimate aim of overcoming dualism between city and countryside. The attainment of sustainable agriculture is integral to this process and this entails an emphasis on the multi-functional roles of the sector.

Sustainability demands the maintenance of a certain welfare level over time: it therefore takes account of the needs of future generations. This introduces complex considerations (European Commission, 2001), but can be interpreted broadly as a requirement that the asset base should not be depleted. In order to prevent socially sub-optimal behaviour on the part of individual agents, this requires an appropriate specification of user rights and, in the case of public goods, intervention through democratic decision-making. At the same time, equity demands that all members of all societies must have access to the resources necessary to afford them a level of well-being that does not fall short of the socially agreed minimum level. It must be noted immediately, however, that it is but a short step from this latter desideratum to a

consideration of the conflicts that can arise between a focus on the standard of living and one on the quality of life (Bliss, 1993).

Rurality *per se* is not regarded as an obstacle to development, with some rural areas being amongst the most dynamic in the EU (European Commission, 1997). Nevertheless, rural regions are regarded as a legitimate focus of policy attention not only because many remain economically relatively non-diversified and exhibit low income levels, but also because they are the location of numerous, valued public goods and their citizens are the potential perpetrators of various externalities. The latter reasons, along with the political desire to foster a sense of European citizenship without stifling diversity, help to explain why the EU seeks to promote rural development without the classical migration mechanism. In particular, a process of rural development is sought that exploits indigenous potential while maintaining community and cultural heritage and promotes local participation and hence social inclusion. This of course implies the existence, or growth of, a stock of social capital and the existence of competent local authorities, both of which are to be preserved along with the more tangible assets referred to above. The first stage of the present research will therefore focus on an audit of the endowments and success of Polish communities, with particular reference to the position of rural localities in the hierarchy. Table 1 presents a schematic overview of the form that this audit might take.

3. Rurality: Definition and Description

However familiar the concept of rurality may appear to be, there remains no one single definition of the term and those that have been adopted vary in terms of their attempted sophistication, between different countries and international organizations and according to the purpose for which they are required. The simplest approach is that adopted by the the OECD, which defines NUTS 5 level communities as rural if they possess population densities less than 150 people per square kilometre. At higher levels of spatial aggregation, OECD defines predominantly rural regions as those with over 50% of their population living in rural communities, significantly rural regions as those with 15 to 50% of their population in rural communities and predominantly urban regions as those having less than 15% of their population in rural communities (*ibid.*).

The approach to area classification adopted by Eurostat is somewhat more complex. It is based on a three-tier hierarchy of the degree of urbanisation. Densely populated zones comprise groups of contiguous municipalities, each with a population density greater than 500 inhabitants per square kilometre and a minimum zonal population of 50,000. Intermediate zones comprise groups of municipalities, each with a population density in excess of 100 inhabitants per square kilometre and not belonging to a densely populated zone. The zone's total population must number at least 50,000 or it must be adjacent to a densely populated zone. Sparsely populated zones are those groups of municipalities not classified as either densely populated or intermediate. Provided that the area concerned is less than 100 square kilometres, a municipality or continuous group of municipalities not reaching the required density threshold, but wholly contained in either a densely population or intermediate zone is considered to be part of that zone. If it is located between a densely populated and an intermediate zone, it is considered to be intermediate (*ibid*).[3]

The present paper is exploratory and as such attention has been confined to NUTS 2 and NUTS 3 level regions combined with the basic OECD community level definition of rurality, albeit with varying population density thresholds. Within the EU-15 there are now 211 NUTS 2 level regions, of which a full listing can be found in, for example, European Commission (2001). In order to render their administratively defined spaces compatible with the requirements of the EU, in particular the regulations governing the Structural Funds, the applicant countries have also recently applied the NUTS classification to their territories and the data considered in this paper identifies 50 NUTS 2 level regions within them.[4] The resulting grand total of 261 NUTS 2 regions have been subdivided into urban-rural dichotomies according to maximum population density thresholds of 150, 100 and 50 inhabitants per square kilometre. Although the degree of aggregation in combination with the definition of rurality employed inject a degree of caution, Table 2 alludes to the impact that eastward enlargement will have on the territorial and population complexions of an expanded Union.[5]

While a significant percentage of the EU's current regions and population can be regarded as rural - almost half of the former and one-third of the latter on the most liberal definition of the term - the figures for the applicant countries are considerably larger, except in the case of very sparsely populated areas. Thus, very nearly half of the population of the CEE-10 live in regions with less than 100 inhabitants per square kilometre. Admitting all of the applicants might therefore be viewed as likely to increase the pressure for rural areas to be regarded as a significant policy concern and legitimate target of resource support. Any demand that this should apply without exception, even if only within the new entrants, will be resisted of course and one might anticipate with some confidence that a more rural EU will be yet more selective in targeting assistance.

Although not inevitable, it might be expected that the admission of the applicant countries of CEE, which are on average more rural than the present members of the EU, would serve to increase the significance of agriculture within the enlarged Union, at least in terms of employment. Table 3 demonstrates that this indeed would be the case, with the unweighted average of agriculture's share of employment in regions of all types being greater in the applicant countries than in the present EU. In fact, the regions in which agriculture accounts for more than one-fifth of all employment would increase from ten within current member states to twenty-four if all CEE applicants were admitted. Although crude insofar as the calculations are based on just three broad sectors (agriculture, industry and services), Table 2 also highlights the fact that, using a standard Herfindahl index, the economies of the rural regions of CEE are rather less diversified in their employment structures than those of current members, as indeed are their urban economies.[6] With much of the emphasis being upon the creation of diversified employment bases, this finding provides further confirmation that enlargement will provide a stern challenge for sustainable rural development policy. As the following sub-sections demonstrate, this contention finds support in a significant number of other summary indicators.

4. Rural Development: A Problem About To Get Worse?

The multi-faceted nature of the development problem has already been noted and, in particular, the fact that it encapsulates, but is not synonymous with, simple economic progress. However, the data sets that would be necessary to undertake a

comprehensive audit of regional development levels across countries do not exist. Therefore, attention here will focus upon a limited number of more or less quantifiable socio-economic indicators and on the impact of enlargement on the urban-rural distribution of the associated phenomena within the EU. In the case of the first of these (GDP per head), data is available for all 211 EU-15 and 50 CEE-10 regions, but for other variables some observations are not available and reference will be made to the number of cases analysed.

GDP per head

The NUTS 2 level regions with the ten lowest levels of GDP per head in the EU in 1998 that are not overseas territories of member states all have population densities that do not exceed 105 inhabitants per square kilometre.[7] As such, they could all readily be described as rural. On the other hand, not one of the ten richest regions has a population density below 165 and only two are below 500 inhabitants per square kilometre. This suggests the existence of economic prosperity divide, as measured by income per head, between urban and rural areas, which the data in Table 4 only serve to reinforce.[8] There it can be seen that GDP per capita declines as the degree of rurality increases in both the EU-15 and the CEE-10, although the relative shortfall from the average is not quite as great in the latter case. Nevertheless, GDP per head in the rural regions of CEE is only about one-third of the present EU average, even measured in purchasing power parity terms. In an expanded Union of 25 members, relative rural incomes would fall significantly from their current low levels. The exception is that the most sparsely populated areas would exhibit a relative improvement in their status on account of the proportionately smaller addition to the number of regions with less than 50 inhabitants per square kilometre.

In order to bring out more fully the statistical nature of the rural problem as it exists at present and would be in an EU expanded to include ten new member states from the east, Table 5 reports the extremes of the GDP per head indices distributions. In both the current EU and the CEE countries, the lowest levels of economic well-being are recorded in rural regions, although the differences between these areas and the poorest urban regions are not great. However, differences at the upper end of the distributions are more glaring, with the more advantaged urban regions being some 70 per cent better off than their rural counterparts. In fact, almost half of the EU regions with population densities greater than 100 have above average GDPs compared to 12 per cent below that threshold, with the comparable figures for CEE being 56 and 24 per cent, respectively. While enlargement would propel more rural areas above the (lowered) average, the poorest of them, all in the applicant countries, would be relatively worse off than is true when the EU and CEE are considered separately.

Unemployment

Lack of work - or more properly lack of the opportunity to work - is a critical development barometer, although many accounts find a less evident urban-rural divide than in the case of measures such as output.[9] This is mirrored in the European data presented in Table 6, which reports the simple averages of unemployment rates within various regional groupings. They are higher in rural than urban areas in both the EU and CEE, although the differences are not great.[10] Furthermore, while unemployment in CEE exceeds that in the EU, the margin is not large and enlargement would have virtually no impact on the figures recorded in the Union.

A slightly different picture emerges when the focus of attention turns to long-term unemployment as a proportion of the stock of jobless. Table 7 reports that, within the

current borders of the Union, rural regions have a more favourable record than average although it is not possible with the current data set to ascertain whether this is reflected in higher flows into work. In CEE, on the other hand, rural regions have slightly more long-term unemployment than average and the accession of the applicant states would worsen, although not reverse, the position of rural compared to urban areas within the EU.

Table 8 presents the data for female unemployment rates and reveals that, within the EU-15, females in rural areas are at some disadvantage in terms of being without work in comparison with women living elsewhere. Furthermore, the overall female unemployment rate is shown by implication to be a good deal higher than that of men. It may surprise some (see Ingham and Ingham, 2001) to learn that the situation in the countries of CEE is somewhat more favourable to women, both in aggregate and in rural regions. Although further confirmation is necessary, it might be surmised that the latter finding is a function of the greater importance of agriculture in the economies of those states. Nevertheless, the accession of the applicant states would have only a small impact on the statistical position of women the EU.

The final labour market indicators to be examined here relate to youth unemployment rates, which are given in Table 9. These frequently assume even greater political importance than unemployment overall and they are certainly a significant consideration in the attempt to attain sustainable rural development trajectories. Overall, youth unemployment rates are rather higher in CEE than they are in the current EU member states, although the performance of rural areas compared to the average on this score is noticeably better in the former than in the latter. Indeed, youths in the more sparsely populated regions (less than 100 inhabitants per square kilometre) of CEE fare better than the average.

Age and education

Although there are likely to strong interconnections, it is possible to isolate certain factors that influence development, particularly if it is to be sustainable, but which might be described as non-economic. A particularly popular example of this in recent discussion is the notion of social capital (Raiser *et al.*, 2001), although this is beyond the scope of the current overview. It is, however, something that later work will attempt to investigate in the context of Polish local development patterns. In the present instance, however, attention will be restricted to an investigation of the spatial variation in age structures of the population and levels of educational attainment.

Table 10 confirms that, within the EU-15, the residents of rural areas are older than those living elsewhere. However, the differences are not perhaps as marked as might have been expected. This is no doubt a function of the degree of spatial aggregation employed here. In CEE, on the other hand, there is no evidence that the populations of rural regions tend to be relatively old, except in the case of the two most sparsely areas. This is a surprising finding and one that certainly demands further inspection with more disaggregated data. What the table does bring out clearly, however, is the greater life expectancy of western Europeans than their eastern neighbours (GUS, 2000: 418-421).

Table 10 also presents data on the percentage of rural populations possessing low education. As developed further below, this is a slippery concept, although it is usually regarded as an important factor in the determination of development potential and, as such, is worthy of consideration here. Within the EU-15, rural regions are certainly disadvantaged in this regard and the handicap increases progressively as population density falls. The same cannot be said of the countries of CEE where the

proportion of the population having poor education is only slightly greater in rural areas than the average. Most striking of all, however, is the apparent gap in educational levels between the EU and CEE, with the former seemingly having nearly twice as many poorly educated citizens as the latter. This issue will now be taken up in more detail.

5. A Regression Based Approach

The foregoing exercise was based on the pooling of data across countries and the formation of population density groupings from these. The potential to draw misleading conclusions from the resulting cross-tabulations is perhaps most clearly evident in the case of the education data from which it would appear that the Czech Republic, Estonia, Latvia and, to a slightly lesser degree, Poland have less than half the proportion of poorly educated citizens as Belgium, France, Luxembourg and the Netherlands. One of the numerous corollaries of this is that the poorest region of Poland (Lubelskie), with a population density of only 89.2, has almost half the proportion of lowly educated inhabitants as the Brussels region, which has a population density of 5,913 and a GDP per capita that is almost 70 per cent greater than the EU average. Similar distortions occur with other variables that, on the face of it, might appear less open to subjective assessment. For instance, Spain has an unemployment that is more than five times greater than that in Austria and the highest regional rate of joblessness in the latter (Vienna) is considerably below the lowest rate to be found in the former (La Rioja). In short, there is a danger of confusing regional - and therefore urban and regional contrasts - and country-specific effects in simple cross-tabulation exercises. In order to overcome this difficulty, the approach adopted here is to regress each of the development indicators on a measure of rurality and a set of country dummy variables. Two alternatives are presented for the rural measure: the first takes the value one if a region has fewer than 150 inhabitants per square kilometre while the second is a continuous population density variable. The UK is taken as the base country for the EU-15 regressions, Poland is the base for the CEE-10 regressions and the UK is the base for the EU-25.

GDP per head

Tables 11 and 12 confirm the initial impression that rural levels of GDP per head fall well below those in other areas, both in the EU-15 and in CEE, even after country specific controls have been applied. In both cases, this simple description of the data is seen to be most satisfactory in the case of the applicant countries where it accounts for over 60 per cent of its variability. At the same time, the economic penalty paid for living in a rural location is proportionately much greater in CEE. Regions with population densities below 150 have per capita GDPs that are on average 50 per cent lower than in other regions in absolute terms in CEE than in the EU, despite being in relation to much lower bases. Similarly, every unit increase in population density in the applicant countries generates a much larger absolute increase in per capita GDP than is the case in the current EU. The consequence is that enlargement to a Union of 25 would generate an enormous leap in measured rural disadvantage, as is particularly evident from the finding in Table 11.

Unemployment

The picture portrayed by Tables 13 and 14 regarding urban-rural unemployment rates is somewhat less clear-cut. In the former, which uses a simple urban-rural dichotomy, rural unemployment rates are significantly higher than those found elsewhere in CEE. Accession of the applicant states would on this measure be sufficient to create a significant rural disadvantage within the EU also, although one that would only be of the order of one and a half percentage points. Whilst the coefficient on the simple dummy variable measure of rurality is insignificant for the countries within the current EU, the coefficient on population density in Table 14 is significant and positive, albeit small. The likely explanation for this finding is that areas of very high unemployment within each current member state tend to have very high population densities (e.g. Brussels, Inner London). In CEE, on the other hand, unemployment is negatively and significantly related to population density, which reinforces the finding from the regression incorporating the rural dummy variable. However, this would be insufficient in a Union of 25 to reverse the conclusion that unemployment rates were positively correlated with population density. Nevertheless, this must not be allowed to detract from the finding that sparsely populated areas tend to have higher unemployment rates than others; it merely suggests that it is a problem shared with big urban conurbations.

The results for long-term unemployment, reported in Tables 15 and 16, present yet a different picture. In the current EU, the proportion of those out of work for protracted periods is significantly less in rural than in urban areas, however these concepts are defined. While this finding begs further interpretation - is there more churning in rural areas, is there greater fluidity between in and out of the market in rural areas etc. - it is in contrast with that for CEE, where no significant difference emerges between regions according to their density of population. Nonetheless, the upshot is that an enlarged Union of 25 would exhibit proportionately fewer long-term unemployed in rural areas than elsewhere and, to some extent this might be regarded as a feature that reduces the policy significance of their plight.

Table 17 suggests that, in the current EU, CEE and an enlarged Union, female unemployment tends to be higher in the least densely populated areas, although the coefficient on the RUR150 dummy variable is not quite significant at conventional levels. This picture is confirmed for the applicant countries when the continuous measure of population density is substituted for the dummy variable in Table 18, but is reversed in both the EU-15 and the EU-25 for similar reasons to the sign reversal observed above for long-term unemployment. Care must, however, be taken with these findings: in particular, the pattern observed in Table 17 merely reflects the behaviour of overall unemployment rates and does not, of itself, imply that women in rural areas are at a particular disadvantage.

To investigate the issue of female unemployment disadvantage in more detail, Tables 19 and 20 report regressions that were estimated using the ratio of the female unemployment to the overall unemployment rate as the dependent variable. For current member states, these indicate that, with the exception of the UK (the base), Ireland and Sweden, female unemployment rates tend to be higher than those of males. Furthermore, both rural measures indicate that their position is worse, if only slightly so, in more sparsely populated areas. In the case of the applicant countries, however, only Poland and the Czech Republic tend to exhibit a female unemployment disadvantage and there is no evidence that their plight is worse in rural areas than it is elsewhere. Nevertheless, the impact of this in an enlarged Union would be insufficient to eliminate the significant association between RUR150 and relative female unemployment.

Tables 21 and 22 present the regressions on youth unemployment rates in 1999 and the results regarding the impact of residence in rural areas are similar to those obtained. In particular, there is consistent evidence across the two specifications that youth unemployment in CEE is higher in more rural locations, while the evidence for current EU members is that it tends to be a more significant urban phenomenon. If the EU were to expand to 25 members, the results suggest that this latter pattern would be dominant. Once again, however, these results do test whether young people suffer disproportionate handicaps in rural locations.

The results presented in Tables 23 and 24 may seem a little surprising insofar as youth unemployment within the EU appears to have no urban-rural dimension. Also, the evidence suggests that young people are less seriously affected in more sparsely populated regions, even though it was found above that rural regions in the applicant countries face more unemployment overall than do others. However, they would have an insufficiently strong influence upon accession to the Union for any simple, significant spatial differentiation to emerge in the severity of the youth unemployment problem.

Age and education

Within the current EU member states, Tables 25 and 26 reveal there to be a clear and significant tendency for less densely populated regions to have an older population, as reflected in their proportion of citizens aged over 65. This, of course, is one element of the standard vision of the rural problem within Europe. In CEE, however, the evidence is less striking. Thus, there is no evidence that regions with fewer than 150 inhabitants per square kilometre have older populations than other areas and, while the coefficient on population density is significant, it is very small. Overall, therefore, accession of the applicant states would do little in a statistical sense to the present correlation between age and rurality within the EU.

Finally, Tables 27 and 28 present the results obtained from regressing the percentage of regional population with low education on country dummies and alternative representations of the rural measure. The findings for the CEE states are conclusive: the more rural the region, the less well is its population likely to be. Notwithstanding any general advantages or deficiencies of the overall levels of education in the applicant countries, this might be construed as an important challenge for the rural development drive in an expanded EU. The evidence for current member states, however, is less clear-cut. Regions with population densities below 150 exhibit a clear educational deficit, although there is no significant linear relationship with population density treated as a continuous variable. This apparent anomaly would appear to be driven by the fact that certain large, densely populated areas within particular countries also have disproportionately large numbers of their populations with low educational achievements.

6. Levels of Development Across Polish Space

This part of the paper examines urban-rural variation at the level of Polish powiats. As these are NUTS 3 regions, the present exercise must be viewed as an exploratory analysis in anticipation of the NUTS 5 (gmina) level work that will be the focus of the project. There are 373 powiats (2489 gminas) of which 65 are designated as city powiats. Two-thirds of the total have populations of less than 100,000 and, in terms of the OECD definition (less than 150 inhabitants per square kilometre), 70% can be

classified as rural in so much as they have population densities of less than 150 inhabitants per square kilometre (GUS, 2000).[11] The rural powiats with the lowest population densities are located in the north west of the country and on the eastern border as shown in Map 1.[12] This map exhibits clearly the low level of urbanization of the country as a whole, with only the conurbations of Warzawski, Katowice and Łódż representing significant population density continuums. It is not possible to obtain GDP data at the powiat level, but Map 2 reports GDP per capita and population density across the 16 NUTS 2 regions (voivodships) of the country.[13] This map shows that the poorest regions stretch from Warmińsko-Mazurskie in the north all the way down the eastern border to Podkarpackie in the south east of the country. Three of these four voivodships – Warmińsko-Mazurskie, Podlaskie and Lubelskie - have population densities below 100 inhabitants per square kilometre thereby suggesting that rurality would appear to be associated with low GDP.

As noted above, however, GDP per capita is a crude and incomplete measure of the quality of life (Nussbaum and Sen, 1993). Considering what additional information is required to identify human 'thriving' these authors argue that:

> we need to know not only about the money they do or do not have, but a great deal about how they are able to conduct their lives. We need to know about life expectancy…. We need to know about their health care and medical services. We need to know about education – and not only about its availability, but also about its nature and quality. We need to know about labour – whether it is rewarding or grindingly monotonous, whether relations between employers and 'hands' are human or debased. We need to know what political and legal privileges the citizens enjoy, what freedoms they have in the conduct of social and personal relations. We need to know how family relations and relations between the sexes are structured. …. We need …. to know how people are enabled by the society in question …. In short …. we seem to need a kind of rich and complex description of what people are able to do and to be.
> (ibid.: 1-2)

While powiat-level data is insufficiently detailed to allow all of these issues to be addressed, it is nonetheless sufficient to permit an exploratory audit of the state of development across Polish space.

In what follows cluster analysis is employed to group the powiats according to a range of indicators. The purpose of this exercise is twofold: first, the methodology identifies groups of similar areas with respect to certain characteristics; second, having isolated these groups, their composition along the urban-rural dimension can be explored. In principle any apparent rural disadvantage would necessitate action under Article 39 of the Treaty of Rome, which demands 'equitable living conditions for the rural population'.

In forming clusters, the various available techniques form combinations such that:

- Each cluster is homogeneous or compact with respect to certain characteristics. That is, observations in each group are similar to each other.
- Each group should be as different from other groups with respect to the same characteristics; that is, observations in one group should be different from then observations in other groups.

(Sharma, 1996: 185)

The analysis was performed using seven sets of indicators – culture, environment, health, housing, infrastructure, labour market and population. The details of the variables contained in each of these indicator groups are provided in the data appendix. Because many of the variables are measured in different units the series cannot be considered to be equivalent in terms of measures such as similarity or distance. To overcome this problem, the data was standardised to zero mean and unit variance in accordance with the guidelines in Everitt *et al.* (2001). This procedure is, in fact, a special case of weighting where the weights are the reciprocals of the variable sample standard deviations.

The technique used in the analysis was the k-means non-hierarchical optimisation technique. Use of this method requires that the researcher specifies the number of clusters (k) and, in order to determine the optimal value of k, separate runs were conducted for 2 to 20 clusters. The optimal number of clusters was then selected according to the rule proposed by Calinski and Harabasz (1974).[14] This requires that:

$$\frac{\frac{trace(B)}{g-1}}{\frac{trace(W)}{n-g}}$$

is maximised where:

trace(B) = the sum of between-group sums of squares, over all variables
trace (W) = the sum of within-group sums of squares, over all variables
g = the number of clusters
n = the number of observations.

The results were generated using the non-hierarchical clustering procedure FASTCLUS in SAS (SAS Institute, 1996). This procedure uses the nearest centroid sorting algorithm described in Anderberg (1973).

6. Results

The results that follow describe the optimal cluster solutions for the seven groups of indicators. Table 29 reports the chi-squared statistics employed to test whether cluster membership exhibits an urban-rural divide and these reveal a statistically significant differentiation for five them, while the culture and environment indicators reveal no such distinction.

Health

The urban-rural divide is particularly stark when the health indicators are interrogated. The analysis produced an uneven 2-cluster solution; 318 powiats are grouped together leaving a relatively small group of 55 powiats in the second cluster. Eighty-one per cent of the members of the large cluster are rural and it contains only 15 city powiats, including Jelenia Góra, Gdańsk and Elbląg. The cluster has below average numbers of hospital beds, outpatient departments, pharmacies and medical professionals. In contrast, they are relatively well served in terms of health centres;

possibly because these serve as substitutes for hospitals in less advanced areas. The second cluster contains 50 city powiats along with three non-city powiats in Mazowieckie and Tatrzański and Będziński. They enjoy above average provision of all of the medical services apart from health centres.

Housing

The largest of the three housing clusters contains 276 powiats and again the urban-rural divide is evident, with 85% being rural and only 12 city powiats. Four of the latter – Zamość, Tarnów, Tarnobrzeg and Krosno – are in the south east of the country and five are in Śląskie. The powiats in this cluster are ranked below average on each of the housing measures utilised in the analysis. This means that the members of this cluster have relatively poor housing provision, whether this is measured in terms of stocks or flows. However, the percentage of their housing stock owned by gminas is below average, although it would be presumptuous to interpret this as an above average level of home ownership since it is not possible to account for voivodship, central government or other communal enterprise ownership using the current data set.

The 62 powiats in the second housing cluster are predominately urban (63%) and of city status (50%). The members of this group have an above average stock of housing and an above average percentage of their housing stock owned by gminas. However, in flow terms, they lag behind the powiats in the other housing clusters insofar as they record the lowest average value for dwellings completed, although this may, in part, be due to their healthy housing stocks. In short, there may be no market excess demand for dwellings and hence no incentive to build new ones. This hypothesis receives some support from the fact that cities such as Łódż, Katowice, Elbląg, Koszalin, Wrocław, Wałbrzych, Legnica and Szczecin are in this cluster, which while prominent position in Poland's industrial history, are not performing well in the contemporary economy.

The smallest cluster contains 35 powiats, 86% of which are urban and 22 have city status. They have above average housing stocks, but the characteristic that most singles out this group is its considerably above average new housing completion rate. The powiats in this cluster could therefore be described as having buoyant housing markets. Some of Poland's most dynamic cities, such as Kraków and Poznań, are in this group, along with the capital and neighbouring Warzawski Zachodini.

Infrastructure

For the infrastructure indicator the analysis produced a two-cluster solution, with a clear urban-rural distinction between the groups. The largest cluster contains 285 powiats, 87% of which are classified as rural and only five are cities (Skierniewice, Kielce, Jastrzębie-Zdrój, Jaworno and Piekary Śląskie). As would be expected, the powiats in this cluster are characterised by an above average provision of powiat and gmina roads, but below average provisions of telephones and shops. In contrast, 60 of the 65 city powiats were allocated to the second cluster and only 15% of the members of the cluster are classified as rural. These powiats have above average provision of telephones and shops, but below average provision of powiat and gmina roads. This latter finding does not, however, imply that road networks are superior in the rural powiats since the data set utilised here does not provide information on voivodship and national routes. Indeed, Swinnen et al. (2001) report that infrastructure deficiencies are a major weakness of rural areas in Poland and in all other aspirant member states.

Labour Market

Using the four labour market indicators identified in the appendix the clustering procedure produced a three-group result. The largest cluster, containing 144 powiats, suffers from an unemployment rate that is significantly above that of the population as a whole and a slightly above average percentage of those who have been unemployed for at least a year. The percentage of unemployed females in this cluster is very close to the average, but the members of the group enjoy the lowest percentage of unemployed who are less than 25 years old. Although 22 of the powiats in this cluster are cities - including Łódż, Zamość, Chełm, Wałbrych, Legnica, Płock, Siedlce and Słupsk - four-fifths of them are rural. The members of this cluster therefore appear to have a general unemployment problem and could be categorised as having depressed labour markets.

The second cluster has 119 members, almost 60% of which are city powiats. The characteristics of this group are a lower than average unemployment rate and a lower than average proportion long-term unemployed. They do, however, have a slightly higher than average proportion of young unemployed and proportion of the unemployed who are female that is significantly above average. This cluster is the most favoured in terms of unemployment; although women are suffer a relative disadvantage in these buoyant labour markets.

The 110 members in the final cluster are predominately rural and only ten are city powiats. They enjoy lower than average unemployment rates and have the lowest percentage of unemployed females. Despite these seemingly favourable indicators, they have the worst profile of all the clusters in terms of the proportion of the unemployed who are young and/or long-term. Given the rural character of the members of this cluster, it may further be the case that the low recorded unemployment rates are a reflection of hidden unemployment in agriculture, which could also explain the finding for female unemployment. This seems all the more likely in a situation where the lack of benefit entitlement for those with family farms dampens the incentive to register as unemployed. Unfortunately, the nature of the current powiat employment data does not allow this matter to be pursued more rigorously at this juncture. However, if the hypotheses are correct, the powiats in this cluster are likely to face worsening unemployment positions when agricultural restructuring begins in earnest.

Population

The four clusters that were identified using the population variables again have a distinct urban-rural delineation. The largest of the groups has 154 members, 90% of which are rural. This cluster is also the most homogeneous insofar as it has the lowest within-group standard deviation (averaged across all variables). The powiats in this cluster have higher than average numbers of pre-working age and lower than average numbers of post-working age residents. In addition, the value for the migration variable is very close to the national average. These powiats can best be described as having of young populations. The second rural cluster contains 94 powiats, of which 98% are rural. The members of this cluster have above average percentages of young and, more worryingly given the magnitude of the coefficient, of post-working age inhabitants. They therefore have a high dependency ratio. The below average figure for migration – which is actually the lowest by a significant margin – indicates that the powiats in this cluster are also suffering from significant emigration. On the assumption that it is working age individuals who are most likely to leave it is

conceivable that the unfavourable demographic situation that these powiats face may worsen in the future.

The largest of the non-rural population clusters comprises 97 powiats, of which 78% are urban, including major cities such as Warzawski, Łódż, Gdańsk and Poznań. The members of this group have the lowest percentages of pre and post-working age individuals and, correspondingly, the highest percentage for the population of working-age. As such, the dependency ratio in these powiats is low. Although the cluster members are experiencing emigration, its magnitude of this suggests that it is not likely to be a serious problem. The final cluster contains 28 powiats, of which 64% are urban. Although only four enjoy the status of city powiat, certain of the others are proximate to major centres – Łódzki Wschodni, Gdański, Poznański, Krakówski and Warzawski Zachodini. The powiats in this cluster have a high percentage of their populations in the working-age band and lower than average percentages falling into the pre and post-working age categories. The most significant feature of this group is the magnitude of the migration coefficient which suggests that these powiats are experiencing significant population inflows. Coupled with the results for the other urban cluster detailed above, these results indicate that the most significant migration flows are into commuter belts around major Polish cities.

Culture

Only two variables were readily available from which to construct the culture clusters and the resultant groupings were one of only two that did not exhibit a statistically significant urban-rural difference. The analysis produced a five-cluster solution. The largest cluster contains 114 powiats and has slightly above average cinema audiences, but below average library borrowings (sixteen per cent of the group are city powiats; Radom, Opole, Chełm and Suwałki are all located in this cluster). The 110 powiats in the next cluster can be viewed as having the worst cultural facilities insofar as they score below average on both of the measures. Cluster membership is mixed: it comprises cities such as Kraków, Łódż, Lublin and Toruń, seemingly relatively affluent suburban areas such as Warszawski Zachodini and poorer ones such as Radomski and Chełmski.

The third large cluster contains 96 powiats and library borrowings within these are above average, but cinema audiences below it. Fifteen members of this cluster are city powiats and some of them, for example Gdańsk and Katowice, are major cities; the capital, Warszawski, is also in this group. The 48 members in the next cluster have library-borrowing figures that are slightly below the national average and cinema audiences significantly above it. Thirteen members of this cluster are city powiats, ranging from Zamość and Tarnów in south east Poland to Słupsk in the north. The powiats enjoying the best culture provision are the five members of the smallest cluster which score above average in terms of cinema audiences and have an exceptionally high score in terms of library borrowings: only one city powiat, Siedlce, appears in this group.

The results of this analysis do not conform to simple priors. Major cities do not, for example, exhibit higher cinema audiences and library borrowings. One possible explanation is that while richer powiats will have better cinema provision, their inhabitants are also more likely to have substitute goods, such as videos and DVD players, which might be expected to reduce cinema audience figures. The implication is that low cinema audiences may be due to either poor provision or good provision coupled with low demand. Similar arguments can be advanced in the case of library

borrowings and these problems may be serving to mask urban-rural differences that might be relevant to the debate on development.

Environment

Analysis of the environmental variables produced a nine-cluster solution. Assignment to particular clusters was once again found not to exhibit a statistically significant urban-rural pattern, although four of them contained only a single outlying gmina. The distribution of the powiats across the remaining five clusters was heavily skewed with the largest group containing 246 observations. This cluster is the most homogenous insofar as the within group variation, averaged across the seven variables retained for the final analysis, is the lowest. The powiats within this cluster have a high percentage of waste water treated, little waste stored, low levels of gas emissions and little accumulated waste. Although the results show that the members of this cluster spend less than the population average on environmental protection and waste management, this may reflect the fact that their favourable performance reduces the need for such expenditures.

The second largest cluster contains powiats with poorer records insofar as they treat a low percentage of waste water, both in terms of traditional (mechanical) and biological/chemical means. They also have poor records in terms of accumulated and stored waste and their expenditures on environmental protection and waste management are well below average. The next largest cluster comprises 35 powiats with relatively poor environmental records. Although they have a high percentage of their waste treated in biological/chemical plants and a high percentage stored in official storage sites, they have high levels of gas emissions and low expenditures on waste management.

The remaining two environmental clusters are small, with six and five members, respectively. The first of these contains two city powiats - Jaworzno and Konin - and is characterised by a problem with solid waste, with its members having high levels of accumulated waste, above average percentages of waste stored in official sites and correspondingly high levels of expenditure on waste management. These powiats also suffer from gas emission levels that are considerably above the sample average. On the other hand, these powiats have the highest expenditure on environmental protection. Powiats in the final cluster have poor records with respect to water treatment and levels of accumulated stored waste, although a higher than average percentage of the latter is stored. This is potentially one factor contributing to the finding that powiats in this group spend significantly more than average on waste management, but this conjecture is made without knowledge of the engineering facts and cost parameters.

7. Summary and Conclusions

Sustainable rural development is now an integral element of EU agricultural policy and is also an objective goal of the Structural Funds. The increased emphasis afforded to it in recent years owes much to the desire for economic and social cohesion between member states, a task that rose to prominence with the accessions of Greece, Portugal and Spain. The problems that their entry posed will be dwarfed, however, by those arising from the imminent expansion of Union to the transition states to the east of its current borders. Unfortunately, the terms of reference under which the rural development debate is conducted lack precision: cohesion, restructuring and even the

concepts rural and development themselves are vague. Furthermore, consideration of the means by which rural levelling-up is to be sought - bottom-up, local initiative - soon encounters further vagaries: competence and social capital being but two. Nevertheless, dissatisfaction with the semantics does not constitute an argument against the existence of a rural problem.

Eastward expansion of the EU will increase the significance of rural Europe, however the term is defined, at least at the NUTS 2 level of aggregation and this is the regional tier on which most popular debate is focused. The percentage of such regions with population densities below 150 inhabitants per square kilometre would increase from 48 to 55, while the proportion of the population living in them would grow by ten percentage points and approach half of the total. At the same time, the importance of agriculture in the total employment count would almost double. The political clamour for rural development aid will surely grow accordingly, but so must the sophistication of the target indicators applied to disburse it.

This paper examined seven basic development indicators, having first controlled for country-specific effects. It found the rural regions in the CEE-10 to be more disadvantaged relative to urban regions than are their EU-15 counterparts in terms of GDP per head, total unemployment rates and the presence of poorly educated inhabitants. On these measures, the rural problem in an enlarged Union will be exacerbated. The evidence in other cases, however, is less clear-cut. Rural areas within the present EU suffer proportionately less long-term unemployment than urban areas, while there is no difference in CEE. Women, on the other hand, face relatively more unemployment in the rural areas of current member states, but no difference is evident in CEE. The most surprising findings though emerged for youth unemployment and the age structure of the population. Youths fare better in the rural areas of CEE and no worse in the EU. As expected, rural areas in the latter have older populations than urban localities, but this hierarchy is reversed in the applicant states. Of course, these findings are no more than suggestive: the level of spatial aggregation underlying them is too great and too many countries are being analysed simultaneously for any reliable policy indicators to emerge. Future work will focus on the high profile rural problem in Poland, with the present paper containing a preliminary audit of urban-rural difference at the NUTS 3 level of aggregation.

The cluster analyses employed for this purpose revealed that, on the basis of the indicators selected for scrutiny, there exist clear differences between the urban and the rural powiats of Poland. In particular, the latter suffer from:

- Poorer provision of the majority of medical services.
- Poorer provision of housing – both in terms of stock and flow measures.
- Poorer provision of infrastructure such as telephones and shops.
- High proportions of their unemployed who are young and/or who have been unemployed for 12 months or more.
- High dependency rates and significant emigration flows.

The EU model requires that rural areas have diversified economic structures, although it is recognised that this is not going to be achieved in the short term '[a] key risk after accession is that the restructuring process and Community instruments will be associated with growing rural unemployment and poverty without being able to tackle the root problem of alternative sources of income directly.' (CEC, 2002: 3). Furthermore, the European vision of rural society is that these areas are attractive places in which to live. The Polish government recognised the need for a 'permanent

transformation of rural areas' in its Coherent Structural Policy for Rural Areas and Agriculture Development (MARD, 1998) and, indeed, certain reforms are already in place. For example, the 1999 educational reform included the opening of secondary schools in rural areas and, from August 2002, college preparatory schools should be created to open higher education to rural youth (FAPA, 2000). Notwithstanding this, key problems remain. First, when multifaceted indicators of 'well-being' are considered, there may be internal conflicts. For example, the preservation of traditional rural heritage is likely to be incompatible with economic diversification. Second, the sheer scale of the problem renders it inevitable that the transformation of Poland's rural areas will not be completed prior to accession. With limited resources available, it is necessary to identify winning strategies, rather than simply winners, that can be transferred from more to less successful rural areas. Without this, economic and social cohesion will be nothing more than empty rhetoric.

Table 1
A Framework for an Audit of Polish Communities

		Economic dimension	Social dimension
Sustainable agriculture and rural development	Stocks	Capital stocks (environmental, man-made, human, employment, social, cultural)	
	Efficiency	• Utilisation of factors of production. • Agricultural productivity. • Competitive agriculture. • Viable agricultural holdings. • Multi-functional agriculture. • Diversified economy.	• Maintenance and creation of employment. • Institutional efficiency. • Participation.
	Equity	• Balanced pattern of development. • Maintenance of vibrant and active rural community.	• Fair standard of living. • Equal opportunities. • Reasonable labour conditions. • Ethical production methods and animal welfare.

Table 2
Regional profiles

	≤ 150 inhabitants/km^2	≤ 100 inhabitants/km^2	≤ 50 inhabitants/km^2
EU-15			
Number	101	73	27
% of regions	47.9	34.6	12.8
% EU population	34.6	22.0	5.4
CEE-10			
Number	42	25	2
% of regions	84	50	4
% CEE population	83.3	46.3	3.7
EU-25			

Number	143	98	29
% of regions	54.8	37.5	11.1
% EU population	45.2	27.3	5.0

Table 3
Agriculture and employment concentration

	<150 inhabitants/km^2	<100 inhabitants/km^2	<50 inhabitants/km^2	Total
EU-15				
Ave. % in agriculture	9.6	11.3	12.8	4.5
Herfindahl (3 sectors)	0.50	0.49	0.49	0.520
n	99	71	26	
CEE-10				
Ave. % in agriculture	19.4	19.9	13.0	17.4
Herfindahl (3 sectors)	0.41	0.41	0.44	0.43
n	40	23	2	47
EU-25				
Ave. % in agriculture	12.4	13.4	12.8	8.2
Herfindahl (3 sectors)	0.47	0.47	0.49	0.51
n	139	94	28	253

Table 4
GDP per head

	≤ 150 inhabitants/km^2	≤ 100 inhabitants/km^2	≤ 50 inhabitants/km^2
EU-15			
GDP/head (EU-15 = 100)	85.2	81.0	78.7
CEE-10			
GDP/head (CEE-10 = 100)	92.8	87.2	82.5
GDP/head (EU-15 = 100)	35.1	33.0	31.2

EU-25			
GDP/head (EU-15 = 100)	65.1	63.8	71.0
GDP/head (EU-25 = 100)	75.3	73.2	82.1

Table 5
Extremes of GDP per head distributions

	≤ 150 inhabs/km^2	≤ 100 inhabs/km^2	≤ 50 inhabs/km^2	> 150 inhabs/km^2
EU-15				
EU-15 = 100				
max	141.5	136.1	129.8	243.4
min	41.8	41.8	41.8	50.0
CEE-10				
CEE-10 = 100				
max	181.9	181.9	98.3	303.3
min	57.2	58.7	73.1	61.1
EU-15 = 100				
max	68.8	68.8	37.2	114.7
min	21.6	22.2	27.7	23.1
EU-25				
EU-25 = 100				
max	163.6	157.5	150.1	281.6
min	25.0	25.7	32.0	26.7

Table 6
Average unemployment rates: 1999

	≤ 150 inhabs/km^2	≤ 100 inhabs/km^2	≤ 50 inhabs/km^2	Total
EU-15	10.2	10.4	11.2	9.0
(n)	(100)	(72)	(26)	(204)
CEE-10	10.8	10.5	12.7	10.3
(n)	(40)	(23)	(2)	(47)
EU-25	10.3	10.4	11.3	9.2
(n)	(140)	(95)	(28)	(251)

Table 7
Long-term unemployment as % total unemployment: 1999

	≤ 150 inhabs/km^2	≤ 100 inhabs/km^2	≤ 50 inhabs/km^2	Total
EU-15	38.7	38.8	36.4	42.1
(n)	(99)	(71)	(26)	(209)
CEE-10	42.7	44.1	47.9	42.2
(n)	(40)	(23)	(2)	(47)
EU-25	39.9	40.1	37.2	42.1
(n)	(139)	(94)	(28)	(256)

Table 8
Female unemployment rates: 1999

	≤ 150 inhabs/km^2	≤ 100 inhabs/km^2	≤ 50 inhabs/km^2	Total
EU-15	13.0	13.6	14.5	10.9
(n)	(100)	(72)	(26)	(204)
CEE-10	11.2	10.3	11.8	10.7
(n)	(40)	(23)	(2)	(47)
EU-25	12.5	12.8	14.3	10.9
(n)	(140)	(95)	(28)	(251)

Table 9
Youth unemployment rates: 1999

	≤ 150 inhabs/km^2	≤ 100 inhabs/km^2	≤ 50 inhabs/km^2	Total
EU-15	21.9	23.4	27.6	18.4
(n)	(99)	(71)	(25)	(203)
CEE-10	23.6	21.8	22.8	22.7
(n)	(40)	(23)	(2)	(47)
EU-25	22.4	23.0	27.3	19.2
(n)	(139)	(94)	(27)	(250)

Table 10
Age and education

	<150 inhabitants/km^2	<100 inhabitants/km^2	<50 inhabitants/km^2	Total
EU-15				
% > 65 1998 (n)	17.0 (94)	17.3 (68)	18.3 (24)	16.3 (200)
% low education 1999 (n)	42.6 (100)	43.8 (72)	45.1 (26)	36.9 (204)
CEE-10				
% > 65 1998 (n)	12.7 (39)	12.8 (22)	14.2 (2)	12.7 (46)
% low education 1999 (n)	21.8 (36)	23.7 (20)	12.5 (2)	20.7 (42)
EU-25				
% > 65 1998 (n)	15.8 (133)	16.2 (90)	18.0 (26)	15.7 (246)
% low education 1999 (n)	37.1 (136)	39.4 (92)	42.8 (28)	34.1 (246)

Table 11
GDP per head 1998: PPS

	EU-15	CEE-10	EU-25
Constant	20662.55 (26.14)**	10599.77 (10.82)	20721.95 (28.23)
Austria	3551.94 (1.99)		3687.91 (2.22)
Belgium	1518.35 (0.96)		1498.91 (1.01)
Germany	594.36 (0.56)		578.92 (0.59)
Denmark	6359.38 (1.35)		6519.76 (1.48)
Spain	-2411.15 (1.77)		-2324.03 (1.82)
Finland	2637.05 (1.25)		2797 43 (1.42)
France	-1367.26 (1.10)		-1257.59 (1.09)
Greece	-5371.46 (3.40)		-5227.98 (3.57)
Ireland	2324.88 (0.68)		2485.26 (0.78)
Italy	624.87 (0.48)		664.37 (0.55)
Luxembourg	14871.45 (3.17)		14812.05 (3.38)
N'lands	1090.12 (0.70)		1030.72 (0.71)
Portugal	-5137.73 (2.67)		-5071.54 (2.83)
Sweden	2265.76 (1.21)		2398.68 (1.38)
Bulgaria		-3139.09 (2.16)	-14023.81 (5.38)
Czech Rep		4948.87 (4.95)	-6031.16 (3.51)
Estonia		1277.75 (0.54)	-9988.24 (2.27)
Hungary		2264.39 (2.18)	-8838.20 (4.84)
Lithuania		18.75 (0.08)	-11247.24 (2.55)
Latvia		-651.25 (0.28)	-11917.27 (2.71)
Poland			-11123.01 (8.20)
Romania		-915.06 (0.92)	-12038.08 (6.94)
Slovenia		7667.75 (3.24)	-3598.24 (0.82)
Slovak Rep		4041.87 (3.14)	-6938.16 (3.02)
RUR150	-2995.93 (3.74)	-4359.82 (4.81)	-14023.81 (4.69)
Pop. Dens			
r^2	0.27	0.61	0.58
n	211	50	261

Table 12
GDP per head 1998: PPS

	EU-15	CEE-10	EU-25
Constant	17892.68 (24.47)	6141.22 (11.49)	17823.54 (26.04)
Austria	2391.66 (1.54)		2416.11 (1.66)
Belgium	1628.11 (1.14)		1622.63 (1.21)
Germany	1685.88 (1.76)		1716.96 (1.91)
Denmark	5821.89 (1.37)		5880.05 (1.48)
Spain	-2580.33 (2.14)		-2544.41 (2.25)
Finland	2313.75 (1.25)		2379.46 (1.37)
France	-1273.93 (1.17)		-1217.91 (1.19)
Greece	-5672.93 (4.16)		-5614.58 (4.39)
Ireland	1968.53 (0.65)		2033.07 (0.71)
Italy	1600.22 (1.36)		1653.62 (1.50)
Luxembourg	17224.14 (4.06)		17278.57 (4.35)
N'lands	2673.07 (1.92)		2700.35 (2.07)
Portugal	-4457.83 (2.57)		-4402.02 (2.71)
Sweden	2253.26 (1.37)		2316.73 (1.50)
Bulgaria		-3358.58 (2.52)	-14216.46 (6.03)
Czech Rep		4105.68 (4.39)	-6631.02 (4.33)
Estonia		1213.16 (0.56)	-10393.02 (2.61)
Hungary		2338.11 (2.47)	-9042.62 (5.56)
Lithuania		-159.98 (0.07)	-11713.05 (2.94)
Latvia		-737.88 (0.34)	-12333.81 (3.10)
Poland			-11382.65 (9.58)
Romania		-1397.19 (1.54)	-12555.49 (8.17)
Slovenia		7287.68 (3.38)	-4171.69 (1.05)
Slovak Rep		4486.54 (3.83)	-6849.45 (3.31)
RUR150			
Pop. Dens	2.53 (7.81)	4.90 (5.97)	2.62 (8.78)
r^2	0.40	0.68	0.66
n	211	50	261

Table 13
Unemployment rate 1999

	EU-15	CEE-10	EU-25
Constant	5.77 (7.95)	10.01 (7.42)	5.66 (8.15)
Austria	-2.77 (1.69)		-3.03 (1.93)
Belgium	3.13 (2.15)		3.17 (2.26)
Germany	2.88 (2.93)		2.91 (3.07)
Denmark	-1.22 (0.28)		-1.53 (0.37)
Spain	8.75 (6.97)		8.58 (7.15)
Finland	4.01 (2.06)		3.71 (1.99)
France	4.73 (3.86)		4.49 (3.85)
Greece	4.28 (2.95)		4.01 (2.90)
Ireland	-0.52 (0.17)		-0.83 (0.28)
Italy	6.10 (5.15)		6.02 (5.30)
Luxembourg	-3.37 (0.78)		-3.26 (0.79)
N'lands	-2.10 (1.48)		-1.99 (1.46)
Portugal	-1.99 (1.13)		-2.11 (1.25)
Sweden	1.51 (0.88)		1.26 (0.77)
Bulgaria			
Czech Rep		-4.25 (3.20)	1.79 (1.11)
Estonia		-2.03 (0.65)	4.57 (1.10)
Hungary		-5.91 (4.28)	0.37 (0.21)
Lithuania		-3.53 (1.12)	3.07 (0.74)
Latvia		-0.03 (0.01)	6.57 (1.58)
Poland			6.32 (4.92)
Romania		-7.16 (5.43)	-0.84 (0.51)
Slovenia		-6.43 (2.05)	0.17 (0.04)
Slovak Rep		2.33 (1.36)	8.37 (3.86)
RUR150	1.05 (1.39)	3.72 (2.93)	1.47 (2.19)
Pop. Dens			
r^2	0.36	0.53	0.37
n	204	47	251

Table 14
Unemployment rate 1999

	EU-15	CEE-10	EU-25
Constant	5.35 (7.32)	13.68 (17.13)	5.46 (7.69)
Austria	-1.87 (1.21)		-1.91 (1.26)
Belgium	2.98 (2.08)		2.99 (2.14)
Germany	3.13 (3.21)		3.08 (3.25)
Denmark	0.14 (0.03)		0.05 (0.12)
Spain	9.53 (7.90)		9.47 (8.07)
Finland	5.45 (2.95)		5.35 (2.97)
France	5.94 (5.21)		5.85 (5.27)
Greece	5.57 (4.09)		5.47 (4.13)
Ireland	0.91 (0.30)		0.80 (0.27)
Italy	6.83 (5.82)		6.75 (5.91)
Luxembourg	-3.10 (0.73)		-3.18 (0.77)
N'lands	-2.11 (1.52)		-2.15 (1.59)
Portugal	-1.10 (0.63)		-1.19 (0.70)
Sweden	2.80 (1.70)		2.69 (1.68)
Bulgaria			
Czech Rep		-3.81 (2.72)	2.77 (1.75)
Estonia		-1.88 (0.58)	6.22 (1.51)
Hungary		-5.97 (4.22)	1.73 (1.02)
Lithuania		-3.30 (1.03)	4.70 (1.14)
Latvia		0.14 (0.04)	8.21 (1.99)
Poland			7.70 (6.25)
Romania		-6.85 (5.04)	0.47 (0.29)
Slovenia		-6.07 (1.89)	1.77 (0.43)
Slovak Rep		1.93 (1.10)	9.55 (4.45)
RUR150			
Pop. Dens	0.0009 (2.82)	-0.003 (2.48)	0.0008 (2.49)
r^2	0.38	0.51	0.38
n	204	47	251

Table 15
Long-term unemployment as % total unemployment 1999

	EU-15	CEE-10	EU-25
Constant	30.77 (18.46)	39.23 (12.37)	30.48 (19.02)
Austria	-1.42 (0.38)		-2.09 (0.58)
Belgium	26.26 (7.83)		26.35 (8.13)
Germany	21.50 (9.65)		21.58 (10.02)
Denmark	-7.15 (0.72)		-7.94 (0.83)
Spain	18.36 (6.37)		17.93 (6.47)
Finland	-4.05 (0.91)		-4.84 (1.13)
France	15.75 (5.98)		15.21 (6.02)
Greece	26.27 (7.88)		25.57 (8.00)
Ireland			
Italy	21.57 (7.92)		21.38 (8.13)
Luxembourg	1.43 (0.15)		1.73 (0.18)
N'lands	12.30 (3.76)		12.59 (3.99)
Portugal	11.80 (2.91)		11.48 (2.93)
Sweden	1.64 (0.42)		0.98 (0.26)
Bulgaria			
Czech Rep		-5.91 (1.89)	7.54 (2.01)
Estonia		1.05 (0.14)	16.06 (1.67)
Hungary		5.41 (1.67)	19.53 (4.90)
Lithuania		-3.05 (0.41)	11.96 (1.24)
Latvia		11.65 (1.58)	26.66 (2.77)
Poland			14.23 (4.81)
Romania		3.08 (0.99)	17.31 (4.57)
Slovenia		0.35 (0.05)	15.36 (1.60)
Slovak Rep		5.43 (1.35)	18.88 (3.77)
RUR150	-5.02 (2.97)	2.32 (0.78)	-3.94 (2.61)
Pop. Dens			
r^2	0.52	0.14	0.48
n	209	47	256

Table 16
Long-term unemployment as % total unemployment 1999

	EU-15	CEE-10	EU-25
Constant	27.74 (16.22)	41.65 (22.87)	27.88 (16.96)
Austria	-3.93 (1.08)		-3.98 (1.14)
Belgium	26.57 (7.92)		26.58 (8.22)
Germany	22.60 (10.07)		22.54 (10.43)
Denmark	-9.41 (0.95)		-9.52 (1.00)
Spain	17.24 (6.10)		17.17 (6.31)
Finland	-6.13 (1.41)		-6.26 (1.50)
France	14.59 (5.73)		14.48 (5.91)
Greece	24.40 (7.65)		24.29 (7.91)
Ireland			
Italy	21.96 (7.99)		21.85 (8.26)
Luxembourg	4.10 (0.41)		4.00 (0.42)
N'lands	14.31 (4.40)		14.26 (4.55)
Portugal	11.64 (2.87)		11.53 (2.95)
Sweden	0.13 (0.34)		0.01 (0.00)
Bulgaria			
Czech Rep		-5.37 (1.68)	6.36 (1.73)
Estonia		1.05 (0.14)	14.66 (1.53)
Hungary		5.37 (1.66)	18.48 (4.73)
Lithuania		-2.98 (0.41)	10.51 (1.10)
Latvia		11.66 (1.59)	25.25 (2.64)
Poland			13.12 (4.60)
Romania		3.36 (1.09)	16.00 (4.34)
Slovenia		0.54 (0.07)	13.83 (1.45)
Slovak Rep		5.20 (1.31)	18.22 (3.66)
RUR150			
Pop. Dens	0.02 (2.84)	-0.003 (1.00)	0.002 (2.76)
r^2	0.52	0.15	0.49
n	209	47	256

Table 17
Female unemployment (%) 1999

	EU-15	CEE-10	EU-25
Constant	4.58 (4.85)	11.13 (8.01)	4.51 (5.09)
Austria	-1.27 (0.59)		-1.44 (0.72)
Belgium	5.88 (3.10)		5.91 (3.31)
Germany	4.12 (3.21)		4.13 (3.42)
Denmark	-0.08 (0.01)		-0.28 (0.05)
Spain	17.25 (10.57)		17.14 (11.20)
Finland	4.54 (1.79)		4.33 (1.83)
France	7.06 (4.42)		6.89 (4.63)
Greece	11.19 (5.91)		11.01 (6.23)
Ireland	-0.23 (0.06)		-0.43 (0.11)
Italy	13.00 (8.44)		12.95 (8.93)
Luxembourg	-1.28 (0.23)		-1.21 (0.23)
N'lands	0.59 (0.32)		0.67 (0.38)
Portugal	0.30 (0.13)		0.22 (0.10)
Sweden	0.87 (0.39)		0.70 (0.34)
Bulgaria			
Czech Rep		-3.56 (2.60)	4.20 (2.03)
Estonia		-4.52 (1.40)	3.62 (0.68)
Hungary		-7.61 (5.35)	0.31 (0.14)
Lithuania		-5.52 (1.71)	2.62 (0.49)
Latvia		-1.42 (0.44)	6.72 (1.27)
Poland			7.95 (4.85)
Romania		-8.75 (6.44)	-0.80 (0.38)
Slovenia		-7.22 (2.23)	0.92 (0.17)
Slovak Rep		1.45 (0.82)	9.21 (3.33)
RUR150	1.80 (1.82)	3.59 (2.74)	2.08 (2.43)
Pop. Dens			
r^2	0.52	0.58	0.51
n	204	47	251

Table 18
Female unemployment (%) 1999

	EU-15	CEE-10	EU-25
Constant	4.42 (4.59)	14.72 (18.22)	4.54 (4.97)
Austria	0.07 (0.03)		0.03 (0.02)
Belgium	5.67 (3.00)		5.68 (3.16)
Germany	4.30 (3.33)		4.25 (3.47)
Denmark	1.77 (0.32)		1.68 (0.32)
Spain	18.30 (11.49)		18.24 (12.07)
Finland	6.46 (2.64)		6.35 (2.74)
France	8.66 (5.74)		8.56 (5.98)
Greece	12.91 (7.18)		12.81 (7.51)
Ireland	1.68 (0.42)		1.58 (0.41)
Italy	13.83 (8.92)		13.74 (9.34)
Luxembourg	-1.26 (0.23)		-1.35 (0.26)
N'lands	0.36 (0.20)		0.32 (0.18)
Portugal	1.37 (0.60)		1.28 (0.59)
Sweden	2.55 (1.18)		2.44 (1.19)
Bulgaria			
Czech Rep		-3.05 (2.15)	5.44 (2.66)
Estonia		-4.41 (1.35)	5.64 (1.06)
Hungary		-7.67 (5.36)	1.97 (0.91)
Lithuania		-5.33 (1.64)	4.62 (0.87)
Latvia		-1.29 (0.40)	8.74 (1.65)
Poland			9.65 (6.09)
Romania		-8.42 (6.13)	0.83 (0.41)
Slovenia		-6.89 (2.12)	2.90 (0.55)
Slovak Rep		1.07 (0.61)	10.63 (3.85)
RUR150			
Pop. Dens	0.001 (1.95)	-0.003 (2.60)	0.0007 (1.72)
r^2	0.52	0.58	0.51
n	204	47	251

Table 19
Relative female unemployment 1999

	EU-15	CEE-10	EU-25
Constant	0.84 (38.13)	1.11 (35.07)	0.84 (40.71)
Austria	0.37 (7.40)		0.38 (8.07)
Belgium	0.36 (8.23)		0.36 (8.66)
Germany	0.16 (5.23)		0.16 (5.49)
Denmark	0.23 (1.74)		0.24 (1.94)
Spain	0.66 (17.46)		0.67 (18.69)
Finland	0.13 (2.27)		0.15 (2.63)
France	0.27 (7.33)		0.28 (8.10)
Greece	0.68 (15.56)		0.69 (16.83)
Ireland	0.08 (0.84)		0.09 (1.02)
Italy	0.65 (18.33)		0.66 (19.46)
Luxembourg	0.54 (4.17)		0.54 (4.36)
N'lands	0.57 (13.36)		0.57 (14.01)
Portugal	0.47 (8.91)		0.48 (9.51)
Sweden	-0.02 (0.31)		-0.01 (0.13)
Bulgaria			
Czech Rep		0.13 (4.07)	0.34 (7.00)
Estonia		-0.20 (2.72)	-0.01 (0.11)
Hungary		-0.16 (5.00)	0.04 (0.74)
Lithuania		-0.17 (2.32)	0.02 (0.13)
Latvia		-0.10 (1.39)	0.09 (0.69)
Poland			0.20 (5.21)
Romania		-0.16 (5.23)	0.04 (0.74)
Slovenia		-0.05 (0.62)	0.14 (1.15)
Slovak Rep		-0.06 (1.52)	0.15 (2.30)
RUR150	0.06 (2.73)	-0.04 (1.36)	0.05 (2.33)
Pop. Dens			
r^2	0.80	0.68	0.80
n	204	47	251

Table 20
Relative female unemployment 1999

	EU-15	CEE-10	EU-25
Constant	0.87 (38.38)	1.07 (58.11)	0.87 (40.76)
Austria	0.40 (8.33)		0.40 (8.85)
Belgium	0.36 (8.06)		0.36 (8.56)
Germany	0.15 (4.83)		0.15 (5.15)
Denmark	0.26 (1.99)		0.26 (2.12)
Spain	0.68 (18.16)		0.68 (19.30)
Finland	0.17 (2.88)		0.17 (3.08)
France	0.30 (8.38)		0.30 (8.94)
Greece	0.71 (16.86)		0.71 (17.94)
Ireland	0.11 (1.18)		0.11 (1.27)
Italy	0.65 (18.02)		0.66 (19.17)
Luxembourg	0.51 (3.91)		0.51 (4.16)
N'lands	0.55 (12.80)		0.55 (13.61)
Portugal	0.48 (8.96)		0.48 (9.54)
Sweden	0.01 (0.16)		0.01 (0.20)
Bulgaria			
Czech Rep		0.12 (3.79)	0.35 (7.43)
Estonia		-0.20 (2.73)	0.01 (0.06)
Hungary		-0.16 (4.94)	0.05 (1.07)
Lithuania		-0.17 (2.34)	0.04 (0.31)
Latvia		-0.11 (1.40)	0.11 (0.86)
Poland			0.22 (5.85)
Romania		-0.17 (5.28)	0.05 (1.15)
Slovenia		-0.05 (0.67)	0.16 (1.33)
Slovak Rep		-0.06 (1.41)	0.16 (2.49)
RUR150			
Pop. Dens	-0.00002 (1.93)	0.00003 (1.13)	-0.00002 (1.88)
r^2	0.80	0.67	0.80
n	204	47	251

Table 21
Youth unemployment (%) 1999

	EU-15	CEE-10	EU-25
Constant	12.06 (7.88)	26.621 (8.96)	11.87 (8.09)
Austria	-7.73 (2.23)		-8.16 (2.46)
Belgium	12.72 (4.14)		12.78 (4.32)
Germany	-3.25 (1.56)		-3.21 (1.60)
Denmark	-2.39 (0.26)		-2.90 (0.33)
Spain	16.85 (6.38)		16.58 (6.53)
Finland	21.05 (4.77)		20.54 (4.86)
France	10.15 (3.93)		9.73 (3.95)
Greece	17.98 (5.87)		17.53 (5.99)
Ireland	-4.29 (0.65)		-4.80 (0.76)
Italy	20.16 (2.50)		20.03 (8.34)
Luxembourg	-5.36 (0.59)		-5.17 (0.59)
N'lands	-4.77 (1.59)		-4.58 (1.59)
Portugal	-2.86 (0.77)		-3.07 (0.86)
Sweden	4.78 (1.32)		4.36 (1.26)
Bulgaria			
Czech Rep		-14.67 (5.01)	2.93 (0.86)
Estonia		-10.35 (1.49)	8.20 (0.93)
Hungary		-18.87 (6.20)	-0.87 (0.24)
Lithuania		-11.15 (1.61)	7.40 (0.84)
Latvia		-9.05 (1.31)	9.50 (1.07)
Poland			18.07 (6.66)
Romania		-15.24 (5.25)	2.83 (0.82)
Slovenia		-13.95 (2.01)	4.60 (0.52)
Slovak Rep		0.04 (0.01)	17.63 (3.85)
RUR150	1.33 (0.83)	5.83 (2.08)	2.03 (1.43)
Pop. Dens			
r^2	0.53	0.57	0.54
n	203	47	250

Table 22
Youth unemployment (%) 1999

	EU-15	CEE-10	EU-25
Constant	11.13 (7.22)	32.43 (18.77)	11.32 (7.57)
Austria	-6.45 (1.97)		-6.52 (2.05)
Belgium	12.50 (4.13)		12.52 (4.26)
Germany	-2.77 (1.34)		-2.85 (1.42)
Denmark	-0.33 (0.04)		-0.49 (0.06)
Spain	18.05 (7.09)		17.96 (7.26)
Finland	23.24 (5.50)		23.06 (5.62)
France	12.01 (4.98)		11.85 (5.06)
Greece	19.94 (6.94)		19.78 (7.08)
Ireland	-2.11 (0.33)		-2.29 (0.37)
Italy	21.39 (8.63)		21.25 (8.83)
Luxembourg	-4.70 (0.53)		-4.85 (0.56)
N'lands	-4.62 (1.58)		-4.70 (1.65)
Portugal	-1.42 (0.39)		-1.57 (0.44)
Sweden	6.77 (1.95)		6.59 (1.96)
Bulgaria			
Czech Rep		-13.87 (4.58)	4.42 (1.32)
Estonia		-10.15 (1.46)	10.74 (1.24)
Hungary		-18.97 (6.20)	1.24 (0.35)
Lithuania		-10.82 (1.55)	9.90 (1.14)
Latvia		-8.82 (1.27)	12.03 (1.39)
Poland			20.22 (7.79)
Romania		-14.71 (5.01)	4.83 (1.44)
Slovenia		-13.40 (1.92)	7.04 (0.81)
Slovak Rep		-0.58 (0.16)	19.49 (4.31)
RUR150			
Pop. Dens	0.002 (2.44)	-0.005 (1.95)	0.001 (2.17)
r^2	0.54	0.56	0.54
n	203	47	250

Table 23
Relative youth unemployment 1999

	EU-15	CEE-10	EU-25
Constant	2.02 (42.48)	2.70 (19.51)	2.03 (41.38)
Austria	-0.66 (6.14)		-0.62 (5.59)
Belgium	0.71 (7.46)		0.71 (7.11)
Germany	-0.92 (14.33)		-0.93 (13.81)
Denmark	-0.11 (0.38)		-0.06 (0.21)
Spain	-0.07 (0.90)		-0.05 (0.58)
Finland	0.63 (4.56)		0.67 (4.72)
France	0.01 (0.07)		0.04 (0.51)
Greece	0.80 (8.43)		0.84 (8.58)
Ireland	-0.62 (3.05)		-0.58 (2.73)
Italy	0.61 (7.82)		0.62 (7.65)
Luxembourg	0.77 (2.76)		0.76 (2.59)
N'lands	-0.06 (0.70)		-0.08 (0.84)
Portugal	0.27 (2.37)		0.29 (2.43)
Sweden	0.11 (0.94)		0.14 (1.22)
Bulgaria			
Czech Rep		-0.48 (3.53)	-0.06 (0.56)
Estonia		-0.47 (1.46)	-0.14 (0.47)
Hungary		-0.66 (4.66)	-0.28 (2.29)
Lithuania		-0.27 (0.84)	0.06 (0.21)
Latvia		-0.65 (2.02)	-0.32 (1.08)
Poland			0.38 (4.13)
Romania		0.31 (2.29)	0.69 (5.91)
Slovenia		0.17 (0.54)	0.51 (1.72)
Slovak Rep		-0.24 (1.39)	0.17 (1.13)
RUR150	0.05 (1.09)	-0.34 (2.62)	-0.01 (0.16)
Pop. Dens			
r^2	0.80	0.52	0.76
n	203	47	250

Table 24
Relative youth unemployment 1999

	EU-15	CEE-10	EU-25
Constant	2.05 (42.31)	2.36 (29.00)	2.04 (40.55)
Austria	-0.63 (6.14)		-0.63 (5.87)
Belgium	0.71 (7.44)		0.71 (7.14)
Germany	-0.94 (14.43)		-0.93 (13.81)
Denmark	-0.08 (0.30)		-0.08 (0.26)
Spain	-0.06 (0.78)		-0.06 (0.69)
Finland	0.65 (4.86)		0.65 (4.73)
France	0.02 (0.29)		0.03 (0.37)
Greece	0.82 (9.07)		0.83 (8.79)
Ireland	-0.60 (2.99)		-0.59 (2.83)
Italy	0.60 (7.70)		0.61 (7.48)
Luxembourg	0.75 (2.65)		0.75 (2.57)
N'lands	-0.09 (0.95)		-0.08 (0.87)
Portugal	0.27) (2.38)		0.28 (2.35)
Sweden	0.12 (1.10)		0.13 (1.13)
Bulgaria			
Czech Rep		-0.52 (3.67)	-0.07 (0.65)
Estonia		-0.49 (1.48)	-0.15 (0.52)
Hungary		-0.66 (4.54)	-0.29 (2.45)
Lithuania		-0.29 (0.89)	0.05 (0.16)
Latvia		-0.67 (2.03)	-0.33 (1.14)
Poland			0.36 (4.14)
Romania		0.28 (2.03)	0.67 (5.96)
Slovenia		0.14 (0.43)	0.49 (1.69)
Slovak Rep		-0.21 (1.17)	0.16 (1.06)
RUR150			
Pop. Dens	-0.00003 (1.17)	0.003 (2.29)	-0.00001 (0.63)
r^2	0.80	0.50	0.76
n	203	47	250

Table 25
Population age > 65 (%) 1999

	EU-15	CEE-10	EU-25
Constant	16.15 (42.02)	12.08 (22.63)	16.21 (44.61)
Austria	-2.37 (2.78)		-2.15 (2.69)
Belgium	-0.21 (0.28)		-0.21 (0.30)
Germany	-0.44 (0.87)		-0.44 (0.91)
Denmark	-2.72 (1.24)		-2.47 (1.19)
Spain	-0.56 (0.85)		-0.41 (0.66)
Finland	-2.76 (2.75)		-2.50 (2.66)
France	-0.85 (1.31)		-0.64 (1.06)
Greece	0.11 (0.14)		0.33 (0.47)
Ireland			
Italy	1.37 (2.23)		1.46 (2.49)
Luxembourg	-1.85 (0.85)		-1.91 (0.93)
N'lands	-2.64 (3.64)		-2.70 (3.93)
Portugal	-1.25 (1.38)		-1.13 (1.32)
Sweden	0.17 (0.20)		0.39 (0.46)
Bulgaria			
Czech Rep		1.83 (3.48)	-3.47 (4.22)
Estonia		2.42 (1.94)	-3.27 (1.58)
Hungary		2.55 (4.66)	-2.92 (3.34)
Lithuania			
Latvia		2.62 (2.10)	-3.07 (1.48)
Poland			-5.50 (8.29)
Romania		1.01 (1.93)	-4.49 (5.38)
Slovenia		1.52 (1.22)	-4.17 (2.01)
Slovak Rep		-0.48 (0.71)	-5.78 (5.30)
RUR150	1.47 (3.70)	-0.40 (0.79)	1.16 (3.37)
Pop. Dens			
r^2	0.21	0.39	0.42
n	200	46	246

Table 26
Population age > 65 (%) 1999

	EU-15	CEE-10	EU-25
Constant	16.92 (41.55)	11.58 (40.27)	16.87 (43.97)
Austria	-1.55 (1.91)		-1.53 (1.99)
Belgium	-0.24 (0.33)		-0.24 (0.34)
Germany	-0.68 (1.32)		-0.65 (1.34)
Denmark	-1.95 (0.90)		-1.91 (0.93)
Spain	-0.14 (0.21)		-0.11 (0.18)
Finland	-2.04 (2.11)		-1.98 (2.18)
France	-0.28 (0.45)		-0.23 (0.40)
Greece	0.76 (1.06)		0.81 (1.19)
Ireland			
Italy	1.36 (2.19)		1.41 (2.39)
Luxembourg	-2.53 (1.16)		-2.49 (1.21)
N'lands	-3.15 (4.32)		-3.13 (4.54)
Portugal	-1.10 (1.21)		-1.05 (1.23)
Sweden	0.73 (0.84)		0.77 (0.95)
Bulgaria			
Czech Rep		1.56 (3.09)	-3.05 (3.79)
Estonia		2.48 (2.14)	-2.75 (1.34)
Hungary		2.55 (5.01)	-2.52 (2.95)
Lithuania			
Latvia		2.68 (2.31)	-2.55 (1.24)
Poland			-5.07 (8.03)
Romania		0.89 (1.83)	-4.02 (4.97)
Slovenia		1.51 (1.30)	-3.62 (1.76)
Slovak Rep		-0.46 (0.72)	-5.49)
RUR150			
Pop. Dens	-0.001 (3.35)	0.001 (2.50)	-0.001 (3.23)
r^2	0.20	0.47	0.42
n	200	46	246

Table 27
Population with low education (%) 1999

	EU-15	CEE-10	EU-25
Constant	17.63 (7.43)	13.79 (9.78)	17.59 (8.08)
Austria	0.95 (0.18)		0.87 (0.18)
Belgium	20.74 (4.36)		20.75 (4.73)
Germany	4.76 (1.48)		4.76 (1.60)
Denmark	-4.61 (0.33)		-4.70 (0.36)
Spain	41.33 (10.08)		41.28 (10.96)
Finland	2.90 (0.46)		2.80 (0.48)
France	16.07 (4.01)		16.00 (4.37)
Greece	36.62 (7.29)		34.54 (7.95)
Ireland	25.40 (2.49)		25.30 (2.69)
Italy	33.78 (8.73)		33.76 (9.47)
Luxembourg	18.37 (1.31)		18.41 (1.42)
N'lands	17.29 (3.72)		17.32 (4.05)
Portugal	59.67 (10.36)		59.63 (11.25)
Sweden	-1.11 (0.20)		-1.18 (0.23)
Bulgaria			
Czech Rep		-6.33 (4.78)	-9.55 (1.88)
Estonia		-8.67 (2.77)	-11.70 (0.90)
Hungary		5.60 (4.07)	2.46 (0.46)
Lithuania			
Latvia		-7.67 (2.45)	-10.70 (0.82)
Poland			-3.12 (0.77)
Romania		8.31 (6.33)	5.19 (1.01)
Slovenia		3.33 (1.06)	0.30 (0.02)
Slovak Rep			
RUR150	5.98 (2.41)	6.88 (5.07)	6.10 (2.87)
Pop. Dens			
r^2	0.60	0.79	0.63
n	204	42	246

Table 28
Population with low education (%) 1999

	EU-15	CEE-10	EU-25
Constant	19.62 (7.98)	20.54 (24.53)	19.76 (8.71)
Austria	4.51 (0.86)		4.46 (0.92)
Belgium	20.24 (4.19)		20.25 (4.54)
Germany	4.27 (1.30)		4.21 (1.39)
Denmark	-0.56 (0.04)		-0.68 (0.05)
Spain	43.50 (10.71)		43.43 (11.57)
Finland	6.90 (1.11)		6.77 (1.17)
France	19.31 (5.02)		19.20 (5.40)
Greece	38.21 (4.59)		38.09 (8.99)
Ireland	29.40 (2.87)		29.28 (3.10)
Italy	34.56 (8.74)		34.46 (9.43)
Luxembourg	16.46 (1.15)		16.35 (1.24)
N'lands	15.52 (3.32)		15.47 (3.58)
Portugal	61.17 (10.49)		61.06 (11.33)
Sweden	2.16 (0.39)		2.03 (0.40)
Bulgaria			
Czech Rep		-5.61 (3.82)	-6.86 (1.35)
Estonia		-8.36 (2.47)	-7.74 (0.59)
Hungary		5.48 (3.69)	5.61 (1.04)
Lithuania			
Latvia		-7.33 (2.17)	-6.73 (0.51)
Poland			0.14 (0.04)
Romania		8.86 (6.22)	8.52 (1.67)
Slovenia		4.00 (1.19)	4.31 (0.33)
Slovak Rep			
RUR150			
Pop. Dens	-0.0005 (0.45)	-0.01 (4.14)	-0.001 (0.67)
r^2	0.59	0.76	0.62
n	204	42	246

Table 29
Summary of non-hierarchical cluster results

Cluster	Number of Clusters	Number of Outliers	Cluster Membership N
Culture	5	-	114 110 96 48 1
Environment	9	4	246 77 35 6 5
Health	2	-	318 55
Housing	3	-	276 62 35
Infrastructure	2	-	285 88
Labour Market	3	-	144 119 110
Population	4	-	154 97 94 28

Table 30
Summary chi-square statistics for urban-rural differences

Cluster	Urban-Rural Pearson Chi-Square Test
Culture	2.34
Environment	4.30
Health	129.54*
Housing	112.93*
Infrastructure	169.53*
Labour Market	78.88*
Population	189.40*

* indicates rejection of the null hypothesis that the cluster allocation of powiats is the same for both rural and non-rural powiats.

References

Anderberg, M.R. (1973), *Cluster Analysis for Applications*, New York: Academic Press Inc.

Bliss, C. (1993), 'Life-Style and the Standard of Living', in: Nussbaum and Sen (eds), pp. 417-444.

Calinski, R.B. and J. Harabasz (1974), 'A Dendrite Method for Cluster Analysis', *Communications in Statistics*, vol. 3, pp. 1-27.

CEC (Commission of the European Communities) (2002), 'Enlargement and Agriculture: Successfully Integrating the new Member States into the CAP', Issues paper, SEC(2002) 95 final, Brussels: CEC.

El-Agraa, A.M. (2001), 'The Common Agricultural Policy', in: A.M. El-Agraa (ed.) *The European Union: Economics and Policies*, sixth edition, Harlow: Prentice Hall.

European Commission (2001), 'A Framework for Indicators for the Economic and Social Dimensions of Sustainable Agriculture and Rural Development', Agriculture Directorate-General, 5 February.

European Commission (2001a), 'Unity, Solidarity, Diversity for Europe, its People and its Territory', Second Report on Economic and Social Cohesion, Volume 2, Statistical Annex, January.

European Commission (1999), 'Europe's Agenda 2000: Strengthening and Widening the European Union', Priority Publications Programme, X/D/5, final version 31 August.

European Commission (1997), 'Rural Developments', CAP Working Document: Directorate General for Agriculture.

European Commission (1988), 'The Future of Rural Society', COM(88)501, Final of 28/07/1988.

Everitt, B.S., S. Landau and M. Leese (2001), *Cluster Analysis*, 4th edition, London: Arnold.

FAPA (Foundation of Assistance Programmes for Agriculture) (2000), 'Stereotypes in the European Union Concerning Polish Agriculture', Warsaw.

GUS (Główny Urząd Statystyczny) (2000), *Rocznik Statystyczny Województw 2000*, Warsaw: GUS.

GUS (Główny Urząd Statystyczny) (2000), *Rocnik Demograficzny 2000*, Warsaw: GUS.

GUS/USK (Główny Urząd Statystyczny/Urząd Statystyczny w Katowice) (2001), *Product Krokowy Brutto: Według Wpjewództw w 1999 Roku*, Katowice: GUS/USK.

Ingham, M. and H. Ingham (2001), 'Gender and Labor Market Change: What do the Official Statistics Show?', in: M. Ingham, H. Ingham and H. Domański (eds), *Women on the Polish Labor Market*, Budapest: Central European University Press.

Ingham, H. and M. Ingham (2002), 'EU Expansion to the East: The Problem of Agriculture', in: H. Ingham and M. Ingham (eds) *EU Expansion to the East; Prospects and Problems*, Cheltenham: Edward Elgar.

MARD (Ministry of Agriculture and Rural Development) (1998), 'Coherent Structural Policy for Rural Areas and Agriculture Development', available at http://www.minrol.gov.pl/eng/reports/sponjna.

Milligan G.W. and M.C. Cooper (1985), 'An Examination of Procedures for Determining the Number of Clusters in a Data Set', *Psychometrica*, vol. 50, no. 2, pp. 159-79.

Nussbaum, M.C and A. Sen (1993), 'Introduction', in: M.C. Nussbaum and A. Sen (eds), pp. 1-8.
Nussbaum, M.C. and A. Sen (eds) (1993), *The Quality of Life*, Oxford: Clarendon Press.
Raiser, M., C. Haerpfer, T. Nowotny and C. Wallace (2001), 'Social Capital in Transition: A First Look at the Evidence', European Bank for Reconstruction and Development, Working Paper No. 61.
SAS Institute (1996), *SAS/STAT ® User's Guide, Version 6,* 4th edition, SAS Institute Inc., Cary, NC.
Sharma, S. (1996), *Applied Multivariate Techniques*, New York: John Wiley & Sons, Inc.
Swinnen, J.F.M, L. Dries and E. Mathijs (2001), 'Constraints on Employment Growth and Development in Rural Areas in Transition Countries: Analysis and Policy Implications', paper presented to 74th EAAE Seminar, 12-15 September, Imperial College Wye, UK.

Data Appendix

Culture
Public library loans per borrower.
Audience in fixed screen cinemas per screening per 1,000 population.

Environment
Waste water treated as % of total.
* Population served by waste water treatment plants as % of total population.
Population served by biological, chemical and with increased biogene removal treatment plants as % of total.
* Emissions of particulates from especially noxious enterprises in 1,000 tons per year per capita.
Emissions of gases from especially noxious enterprises in 1,000 tons per year per capita.
Accumulated waste in 1,000 tonnes per capita.
Waste generated during the year stored as % of total waste generated.
Investment outlays on environmental protection per capita in million złoty, current prices.
Investment outlays on waste management per capita in million złoty, current prices.

Health
Medical professionals (Doctors + Dentists + Nurses) per 10,000 population.
Beds in general hospitals per 10,000 population.
Outpatients per capita.
Pharmacies per capita.
Health centres per capita.

Housing
Inhabited dwellings per 1,000 population.
Inhabited dwellings being in gmina ownership as % of total.
Total dwellings completed per capita.
Usable space in dwellings completed in m^2 per capita.

Infrastructure
Hard surface public roads in kilometres – powiat roads – per capita.
Hard surface public roads in kilometres – gmina roads – per capita.
Post offices and telecommunication office services per capita.
Wire telephone subscribers of Telekomunikacja Polska S.A. per 1,000 population.
Shops per capita.
Petrol stations per capita.

Labour Market
All unemployment data are taken from *Bezrobocie Rejestrowane w Polsce I-III Kwarta≈ 2000* (Registered Unemployment in Poland I-III Quarter 2000), G≈ówny Urz□d Statystyczny, Warsaw, 2000. Prior to this date unemployment data were not provided separately for the 65 city powiats.

Registered unemployed women as % of total.
Long-term (12 months +) unemployed persons as % of the total.

Registered unemployed persons aged up tp 25 years as % of the total.
Registered unemployment rate in %.

Population
Natural increase per 1,000 population.
Net internal and international migration for permanent stay per 1,000 population.
Population of pre-working age as % of total.
Population of post-working age as % of total.
Population of post-working age as % of total.

Unless otherwise stated all data are for 1999 and are taken from *Rocznik Statystyczny Województw 2000*, Główny Urząd Statystyczny, Warsaw, 2000.

* indicates that the variable was omitted from the final cluster solution due to either a high degree of correlation between it and another variable or an unacceptably high value for within-group variance.

Notes

[1] For a relatively early formulation of the EU's move from a sectoral to a territorial emphasis see European Commission (1988).
[2] For example, an increase in the number of insured road accidents would, of itself, lead to an increase in GDP, as would a rise in the number of burglaries.
[3] The definition therefore approaches, but does not face head-on, the important issue of peripherality.
[4] In fact, there is still a certain fluidity in the classification of CEE space and there are now six NUTS 2 regions in Bulgaria rather than the three employed here.
[5] The data underlying the results presented in Tables 2 to 28 are drawn from European Commission (2001a).
[6] The standard Herfindahl is defined as $H = \sum s_i^2$, where s_i is the share of a region's employment accounted for by sector i and the summation is across the total number of sectors identified in the data set.
[7] Including overseas territories in the analysis would place Reunion Island, Guadeloupe and Guyane in the bottom ten. These have population densities of 275, 244 and 2, respectively.
[8] The confounding interplay between regional and country specific influences is taken up below.
[9] A complete account would incorporate a consideration of the quality of the available work. While this is largely beyond the scope of the present paper, note has already been made of the reliance of rural areas on agriculture and their more concentrated employment distributions compared to urban regions.
[10] Unfortunately, no data is available for Bulgaria.
[11] In Poland, rural areas are actually defined as 'territory situated outside town administrative boundaries' (MARD, 1998). Using this definition, 38.1% of the country's population and 93.4% of its land would be classified as rural whereas under the OECD definition the corresponding figures are 35% and 91.7/%, respectively (ibid.).
[12] The data for Map 1 are from GUS, (2000).
[13] The data for Map 2 are from GUS (2000) and (GUS/USK, 2001).
[14] This diagnostic was found to be the most reliable in simulation experiments conducted by Milligan and Cooper (1985).