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INTERNAL MIGRATION
AND
REGIONAL POPULATION DYNAMICS
IN EUROPE:
GERMAN CASE STUDY

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ABSTRACT

This paper reports on internal migration and regional population dynamics and to a lesser extend on international migration in Germany. It examines internal migration patterns and trends in two years, 1984, 1989 and 1993, and compares them. Germany has a particularly sophisticated population system with a large number of population categories behaving in a very different way. The indigenous population shows a pattern of urban deconcentration typical for affluent West-European countries, both in the forms of suburbanisation and counterurbanisation. All other groups of migrants, those coming from former East Germany, those of German origin coming from outside Germany (*Aussiedler*) and other international migrants, show a pattern of strong concentration in urban centres. As far as migrations from East to West Germany is concerned the pattern is changing, as the number of migrants declines rapidly. Also in East Germany itself there is a marked shift. The pattern of rapid concentration of population due mainly to rural to urban migration is moving, for the time being, to weak and fragmented deconcentration. This process will speed up with the economic development of Eastern *Länder*.

Medium density areas gain people, high and low density areas lose people. The relationship between net migration on the one hand and population density on the other was strongly negative for low density areas and for the less populated areas. The gainers were areas with a medium density of population.

The age of migrants has a profound impact on their behaviour. There are important variations in redistribution of population by life course stage. The dominant urban deconcentration was most characteristic of middle working and family ages and the pre-retirement and retirement ages. People in the young adult ages migrated in different directions, showing a unique shift to some dense neighbourhoods in big cities, those close to higher education institutions. Unemployment influences migration profoundly. People move between areas of differing unemployment in ways predicted by classical economic equilibrium theory, leaving areas of high unemployment and going to areas of lower unemployment.

German population dynamics depends on three factors: natural increase (persistently negative), internal migration and international migration. International migration is the only factor which maintains the size of population and even allows for a moderate growth. There is no direct threat that the population inhabiting German territory, will decline in the near future, but this may happen to the German population.

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1. CONTEXT

This case study report is part of a wider study of Internal Migration and Regional Population Dynamics, jointly being carried out by the School of Geography of the University of Leeds on behalf of the Council of Europe (Population and Migration Division) and the European Commission (Directorate General V, Employment, Industrial Relations and Social Affairs, Unit E1). The study is funded partly by the School of Geography, partly by awards from the Council of Europe and the European Commission.

There is a multitude of research on population dynamics in Germany. The value added by this study is that the results are comparable with the results of other studies carried out in the framework of this project and should show not only how population changes, but also how these changes compare with changes in other countries.

Germany, the mightiest economy in Europe, has changed beyond recognition during the last decade. The most important change, no doubt, was the unification, or rather incorporation of the German Democratic Republic (GDR) into West Germany (former Federal Republic of Germany). As a consequence, the German economy was stretched substantially, pumping huge funds into the Eastern *Länder* to reduce the discrepancy in the levels of development between East and West and to enhance the neglected infrastructure. The shocking difference in living conditions between the two parts of Germany triggered a considerable wave of migration, which was international before unification and internal after it. This, coupled with very low fertility, has resulted in some reduction of population in Eastern *Länder*. We will look into these processes in detail to assess the direction and degree of shifts. We will also look into the migration behaviour of German population against such indicators as population density, and the functional characteristics and size of urban places.

2. INTERNAL MIGRATION AND POPULATION CHANGE REVIEWED

In 1939 territory of Germany (then the Third Reich) was inhabited by a population of 69.3 millions (Höhn 1991). At the end of 1945 it dropped to 60.8 millions, to increase

quickly to 67.7 in 1947 (Mellor 1978:152). This rapid increase was due to massive compulsory resettlement of Germans, sanctioned by Yalta Conference, mainly from Polish (8.5 million people) and Czech (3.0 million) territories (Kosinski 1964). Some of them originated from the German diaspora, Germans living before the Second World War outside the Third Reich and estimated to be 8.6 million (Mellor 1978:123).

Post-war population developments in East and West Germany were to some extent similar. Fertility changes over the period between late fifties and mid seventies were almost identical: from total fertility rates (TFRs) above replacement level in the GDR and slightly below replacement level in what then was the Federal Republic of Germany, fertility peaked in the first half of the sixties at a level well over 2.4, only to drop to 1.54 in the GDR and to 1.41 in the FRG (Höhn 1991, Council of Europe 1997) in 1974. After 1974 fertility levels in the two Germanies diverged. In the GDR TFR increased to over 1.9 in the late 1970s due to strong pro-natalist policies of the government only to nose dive in the 1990s to a catastrophic 0.77 in 1994. In the FRG TFR kept dropping in the later 1970s and early 1980s to reach a level below 1.3 in 1984 and 1985. Since then TFR has oscillated around 1.4. We may see Germany as crossing two important thresholds: below replacement level in 1970 in the FRG and two years later in the GDR and then below 50% of the replacement level in the 1991 in the Eastern *Länder* of the then unified Germany (Council of Europe 1997).

Total losses of the former GDR due to surplus of deaths over births in the period 1990-1995 stood at 528.3 thousands and in the former FRG the number of births exceeded the number of deaths by only 21.6 thousand, resulting in natural decrease in the whole of German territory of close to a half million over 6 years.

Recent research by Kupiszewski and Kupiszewska (1997) examined the consequences for the development of population in Central and Eastern Europe of scenarios with and without of the inflow of international migrants. They found that, out of the 14 countries analysed, migration has the largest impact on Germany. If there were to be no net immigration to Germany in the future, the all-Germany population would shrink over the period 1994-2019 by over thirteen percent. This rapid reduction is due to two factors: the very low total fertility rate, assumed to be below 1.3 over the whole period after unification, and replacement of large cohorts of baby boomers in the main reproductive ages (20-39) in 1994 by much smaller cohorts, aged 0-19 in 1994, during the projection interval. The alternative scenario which projects forward

the large current numbers of newcomers makes possible the stabilisation of population due to a massive inflow of foreign population, in most cases younger than the resident German population. Gains from international migration in 1994 stood at 471 thousand, but have dropped to below the 400 thousand mark since then. None of the scenarios seems to be realistic. Calculations described above are projections rather than forecasts. Their role is to warn and to illustrate consequences of some trends on the condition these trends remain unchanged.

International migration is therefore the key to the assessment of population development in Germany. Based on the data published in Höhn (1991) and Council of Europe (1997) one may estimate net gains to both Germanies from 1946 until 1995 to be in the region of 12.8 millions. West Germany gained 13 millions, of which at least 3.4 millions were at the expense of East Germany (1950-1989). The estimate is very rough as it does not take into account outflows from East to West Germany in the years 1946-1949, but does take into account the inflow of these migrants into West Germany. More exact calculations covering the period 1951-1989 show gains to the FRG equal to 8.4 millions, of which 3.1 millions arrived from the GDR, giving a net balance for both Germanies of a substantial 5.3 millions. The years 1990 to 1995 added to the net gain a further 3.2 millions, and total gains of both Germanies over the period 1951-1995 can be estimated as 8.5 millions, more than 10% of total German population in 1995. On the top of this number the natural increase of immigrants can be added, which is much higher the natural gain of the indigenous population. There is little doubt that international migration keeps the German population afloat in demographic terms. Obviously there is a price to pay for this demographic influx: some cultural conflict, racial and religious disharmony and possible future political conflict because of the restriction of the right to German citizenship.

Internal migration has different characteristics in the GDR and FRG. In the GDR in the 1950s two processes determined the direction of migration: rapid industrialisation and forced collectivisation of agriculture. In theory in such circumstances we would expect a massive flow from rural to urban areas. Indeed this was the case but an additional factor intervened: massive migration from East to West Germany, mainly occurring in Berlin. This migration stream drained East Germany of its most productive younger and better educated labour. Only the construction of Berlin Wall, in 1961, curbed this flow. The labour deficit caused by migration from the

GDR to the FRG was compensated high female labour force participation, in fact one of the highest in Europe.

East Berlin, the capital city of the GDR and shopping window of Communism, designed to counter the influence of capitalist West Berlin, was the main focal point of migration, attracting people from all over East Germany (Mohs 1980). Some industrial large cities such as Leipzig or Karl Marx Stadt, which lost some 100 thousand between 1955 and 1960 (Jones 1994), were unable to maintain their population, partly due to comprehensive looting of their industrial resources by the Soviet Army in the late 1940s and 1950s, partly due to extremely poor environmental conditions later on. Areas with high investment in heavy industry, such as Cottbus *Bezirk*, with its brown coal related, energy generating and manufacturing base, increased its population by 90 thousand over the period from 1955 to 1987 (Statistisches Jahrbuch der DDR, 1987). Over the period 1963-1965 apart from the Berlin region (including surrounding *Bezirke* of Frankfurt and Potsdam), only Cottbus and Rostock *Bezirke* noted migration gains (Weber 1976). The migration patterns described above were fairly persistent over time. Only *Bezirke* with large industrial agglomerations, such as Dresden or Leipzig, which were gaining population in 1960s, changed to losers later on (Mohs 1980).

In West Germany the pattern of internal migration was much more complicated that than in East Germany. Post-war period started with the massive inflow of Germans resettled from Eastern Europe and emigrants from Soviet occupational zone and later the GDR. Most of them settled in *Länder* of West Germany bordering East Germany, in particular in rural areas where the housing stock was not destroyed by bombs. Post-war re-industrialisation and reconstruction attracted migrants from rural to urban areas. This trend died out in the 1960s. In the 1970s in geographical terms the population of Southern and south-western Germany grew faster than Northern and north-eastern. Old industrial regions depopulated significantly. Simultaneously the affluent middle class resettled from city centres to suburban communes and was swiftly replaced by foreign population and less affluent Germans.

The foreign migrants tend to concentrate in the largest agglomerations. According to Jones (1994), in 1989 23% of all foreigners in Germany lived in Hamburg and West Berlin, a further 29% concentrated in the main cities of Nordrhein-Westfalen, Baden-Württemberg and Hessen, making up for the outmigration of

indigenous population from large cities. The concentration is so high that in some cities (Offenbach, Frankfurt) more than a quarter of population is foreign.

Ubersiedler[1], migrants from the former GDR, settled predominantly in Bavaria (20%) and Nordrhein-Westfalen and Baden- Württemberg (another 30%) (Jones 1994). These three *Länder* were also favoured by *Aussiedler[2]*, with Nordrhein-Westfalen far ahead the rest (29% of all *Aussiedler* settled there in 1991). As with the foreign population, ethnic German immigrants were more likely to settle in large urban centres.

The overall picture of migration in the 1970s and 1980s is the one of deconcentration of urban population, increased commuting to city centres and replacement of population leaving urban agglomerations with migrant population. The overall changes of the population dynamics in Germany over the period 1979-1989 show increases in the South and North and in the Berlin area and decreases in central Germany and the Southern new *Länder* (Bucher and Gatzweiler 1996). Population forecasts conducted by Bucher, Kocks and Siedhoff (1994) suggest that this may be a long term trend.

3. METHODS USED AND DATA EMPLOYED

3.1 Geographical scale and geographical units

Population statistics in Germany are a prerogative of regional Governments. As a result the availability of the data is severely restricted; in theory researchers should contact all 16 Statistical Offices of *Länder*. Some data are, however collected by the *Bundesforschungsanstalt für Landeskunde und Raumordnung* who allowed us to use some of them. The spatial scale for which the data were available is 543 *Kreise*, both for East and West Germany. The temporal scope of the research is the period from 1984 to 1993. This is due to major changes in the administrative boundaries in former

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[1] *Ubersiedler* are population living in former German Democratic Republic. Before the unification they were eligible to obtain citizenship of the Federal Republic. Their inflow to West Germany was curb by political reasons until 1989.

East Germany in 1994. Changes in the political map of Germany over the last decade made it difficult to assemble all data for comparable spatial units in both for Eastern and Western Germany.

The capital city of Germany, Berlin, is the most difficult case to deal with. We adopted the following rule. Whenever the rates or indicators for Berlin were calculated an assumption was made that for the period ending after 1989 West and East Berlin were treated as one unit. For periods ending in 1989 or earlier East Berlin and West Berlin were treated as separate units.

3.2 Variables

3.2.1 Population and population change data

End of year population data and data from the system for registering migration were used in this paper. The at risk population for the calculation of migration rates is therefore slightly different from the normal average of start and end year populations used in computation of occurrence-exposure rates, generating a slight error. The error is systematic and small, therefore should not deform the general picture of the processes examined.

The existing comparison between 1984 and 1989 should be interpreted carefully because it is in this period that the 1987 census falls. The 1987 census was used to correct extrapolation errors which had built up since the 1970 census. The population figures of 1984 are therefore more subject to error and distortion than the 1989 figures. This is especially true for regions with marked external migration (e.g. Munich). Another problem dealt with the adjustment of the registration law from "resident population" to "population at first domicile" falls in this period. The consequence was that inhabitants with a second residence showed up in the migration statistics, although they still lived in the city region. This is true in particular for university cities with a high proportion of students from the city's hinterland (e.g. Münster).

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[2] *Aussiedler* are population living outside Germany and able to demonstrate German origin. By German constitution they are eligible to obtain German citizenship and can move to Germany.

3.2.2 Migration

On the *Kreise* level only data on inflow and outflow from/to each commune by six broad age groups were available. The data were aggregated into unemployment bands, density bands, functional bands and population size bands. For each of them net migration and the effectiveness of migration between bands were calculated.

3.2.3 Unemployment

Data on unemployment expressed as the percentage of unemployed in the total labour force by *Kreise* in 1995 has been obtained from the *Bundesforschungsanstalt für Landeskunde und Raumordnung*.

3.3 Key indicators

In order to make findings for over 20 countries comparable it was necessary to use simple and easy to compute indicators which are meaningful virtually everywhere. The indicators used in this study are population density, unemployment and settlement function. The latter is designed specifically for the German planning system and has no equivalent in any other country.

3.3.1 Population density

Population density indicates the intensity of human settlement. It was calculated in persons per square kilometre and constitutes an index which is probably the most comparable across all European countries. This variable is also taken into account in the functional typology of communes used in this study, and is therefore somewhat redundant. We decided to use it as it is fully comparable with other studies, whereas the functional typology is not.

3.3.2 Unemployment

The rate of unemployment is perceived as an indicator of the performance and competitiveness of local labour market. It may be even used as a crude indicator of the health of local economy. The direct comparability of unemployment rates between countries may easily lead to misunderstandings. Certainly unemployment in the very "liberal", by European standards, United Kingdom economy means something different from unemployment in the highly regulated economies of France or Poland which in turn will differ from unemployment in a planned communist-type economy of Belarus. In the case of Germany, suffering currently high unemployment, it is of particular interest to examine if and to what extent migration is sensitive to the condition of the labour market.

3.3.4. Functional classification

The functional classification used in this study has been devised by the *Bundesforschungsanstalt für Landeskunde und Raumordnung*. It is based on two tier division into three types of regions and nine types of counties *(Kreise)*. This division is based on settlement density and degree of centrality and maintains hierarchical structure. Synthetic description of the classification as well as hierarchy used can be found in Table 1 (BfLR 1997).

Table 1: Types of Regional Policy Regions and Counties (*Kreise*)

	Type of Regional Policy Regions			Type of county
I	Regions with large urban agglomerations			
		1		Core cities or cities with more than 100000 inhabitants
		2		Highly urbanised counties
		3		Urbanised counties
		4		Counties with rural features
II	Regions with tendencies towards urbanisation			
		5		Central cities
		6		Urbanised counties
		7		Counties with rural features
III	Regions with rural features			
		8		Urbanised county
		9		Rural counties

Source: Bundesforschungsanstalt für Landeskunde und Raumordnung

3.4 Mapping methods

Mapping methods have been described in Rees, Durham and Kupiszewski (1996). The rules set out there are used in this study.

4. SPATIAL PATTERNS

4.1 The pattern of population change: 1984-1989 (former GDR) and 1984-1993 (united Germany)

The process of population growth in Germany is analysed for three periods: 1984-1989, 1984-1993 and 1992-1993. The selection of periods allows for the investigation of processes before the unification (1984-1989) separately in West Germany and German Democratic Republic, for the examination of medium term (1984-1993) population change in the unified Germany, irrespective of the change of political

boundaries and finally for the establishment of a snapshot picture of the most recent annual changes (1991-1993) in the unified Germany.

4.2 Population change in 1984 and 1993 by *Kreise*

Between 1984 and 1989 (Figure 1) in the GDR there is a clear two-tier system of growing large urban agglomerations in the south (Leipzig, Karl Marx Stadt, Dresden), together with the surrounding suburban *Kreise*, and of an increase in population in East Berlin and in a few selected *Kreise* in the northern part of eastern Germany. All other *Kreise* have been losing population, in particular in the south-east, in Saxony. Low or negative natural increase, out-migration to few urban agglomerations and a high level of emigration to West Germany in 1989 certainly were the main reasons of massive depopulation of the most of the territory of the former GDR.

In the then FRG there were a number of far reaching changes visible in Bavaria. In the northern part of this *Land* urban centres located in predominantly rural areas have been losing population, possibly at the expense of the surrounding rural areas which have been growing moderately. Generally speaking, we can identify a pattern of population growth in the southern and central parts of West Germany and decrease in the North. Apart of Bavaria the changes were limited, usually within a band of 5% around the 1984 population.

In the longer term for the period 1984-1993 (Figure 2) Germany is visibly divided into post-Communist, population losing areas, and former West Germany gaining population. In the former GDR the decline of population almost everywhere exceeding 5% and in many cases, in particular in the south-east, even 10%. As for the period 1984-1989 urban agglomerations have been growing over the 9 year period.

The former territory of the FRG has been growing uniformly, faster in the South than in the North. Apparently two phenomena contributed to this picture: massive migration from the territory of the former GDR to the territory of the former FRG and inflow of foreigners who at all cost tried to avoid settlement in the former GDR. both due to much worse than in the former FRG economic situation and due to racial tensions, much higher and more widespread in the East than in the West.

Figure 1: Population growth by Kreise, Germany 1984-1989

Population growth
Population 1984 = 100

■	120 and over	(20)
■	110 to <120	(12)
■	105 to <110	(59)
■	100 to <105	(218)
■	95 to <100	(188)
■	90 to <95	(18)
■	10 to <90	(29)

0   50   100
Kilometers
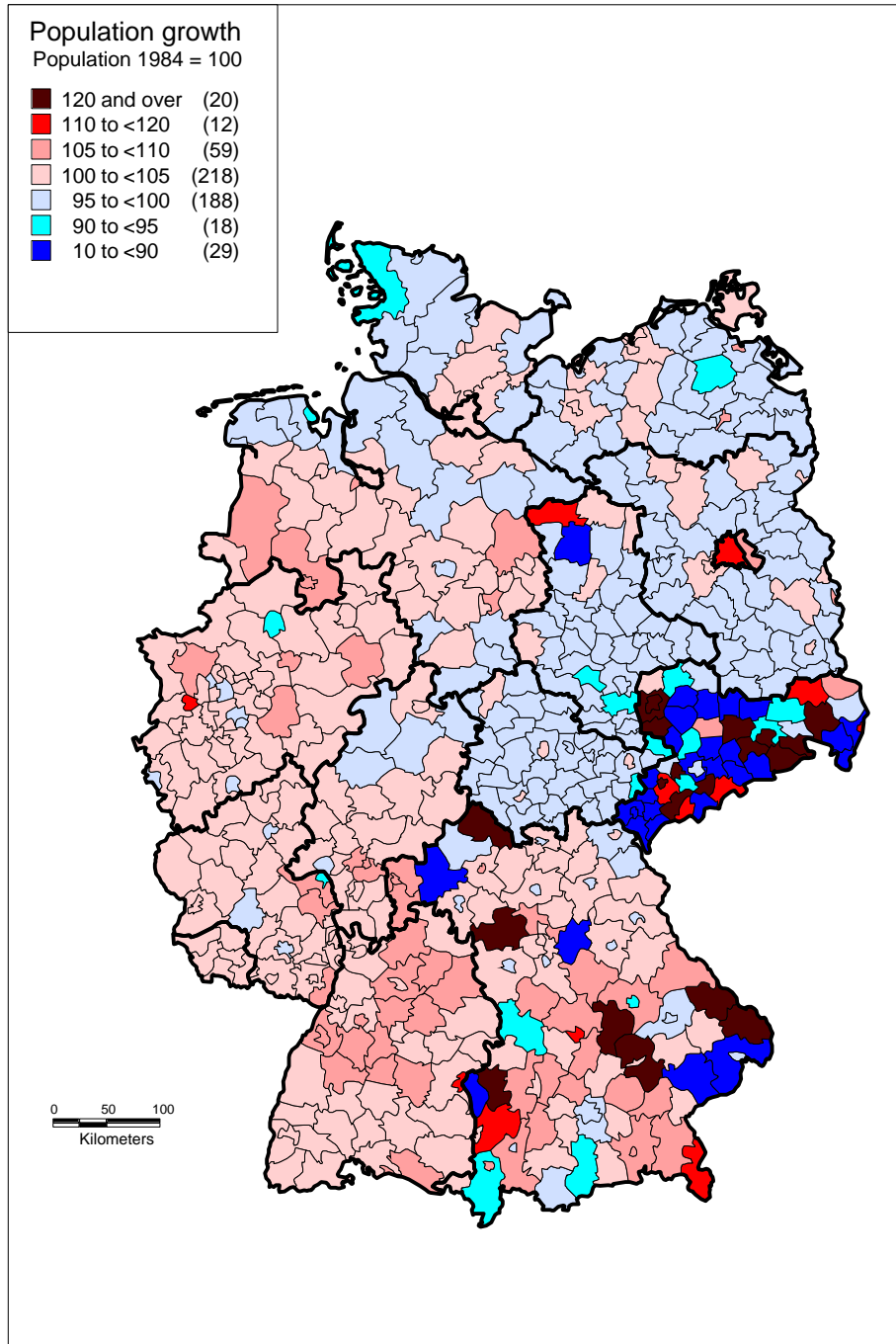
Figure 2: Population growth by Kreise, Germany 1984-1993

Population growth
Population 1984 = 100

■	120 and over	(14)
■	110 to <120	(112)
■	105 to <110	(129)
■	100 to <105	(88)
■	95 to <100	(52)
■	90 to <95	(97)
■	10 to <90	(51)

0   50   100
Kilometers
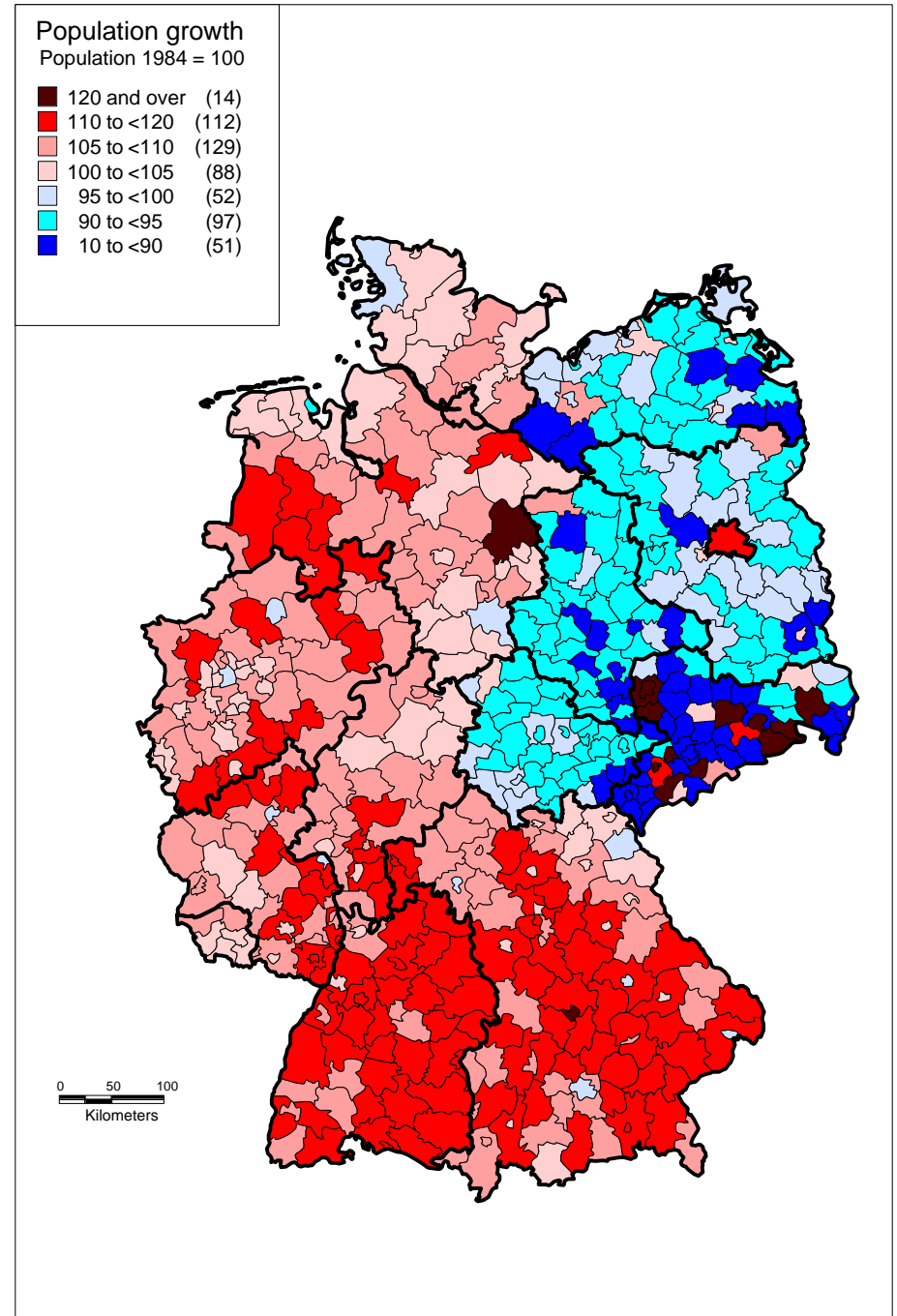
Snapshot of population change in 1992-1993 (Figure 3) gives somewhat more sophisticated vision of population change in Germany. As we expected most of *Kreise* in the former GDR have been losing population, but Berlin and part of its agglomeration was growing as was Brandenburg. There was a very characteristic pattern of towns and cities, such as Rostock, Schwerin, Wismar, Erfurt, Plauen, Zwickau, to name a few, decreasing and their immediate hinterland growing. This may suggest some form of suburbanisation being in existence in the former GDR.

In the former FRG we observe uniform growth of all but highly urbanised areas. In the north Bremen, Kiel, Wilhelmshaven and Lübeck were all losing population. the same fate shared cities in the old industrial core of Ruhr and Saar agglomerations, as well as economically powerful urban centres of the West and South: Frankfurt, Bonn, Darmstadt, Nürnberg, Stuttgart, Munich. A score of smaller towns and cities also belong to the same group. This is a clear and loud demonstration of urban deconcentration. It is difficult to decide whether this deconcentration represents suburbanisation, which involves movement of residents to places further from city centres but still connected with them or counterurbanisation, which involves displacement of work as well as home. It would only be possible to determine this by examining population change and link to it employment change and commuting data at *Gemeinde* (commune) level.

Figure 3: Population growth by Kreise, Germany, 1992 - 1993

Population growth
Population in 1992 = 100

- 102.5 to <110.0 (13)
- 101.0 to <102.5 (130)
- 100.0 to <101.0 (191)
- 99.0 to <100.0 (148)
- 97.5 to <99.0 (58)
- 90.0 to <97.5 (3)

0   50   100
Kilometers
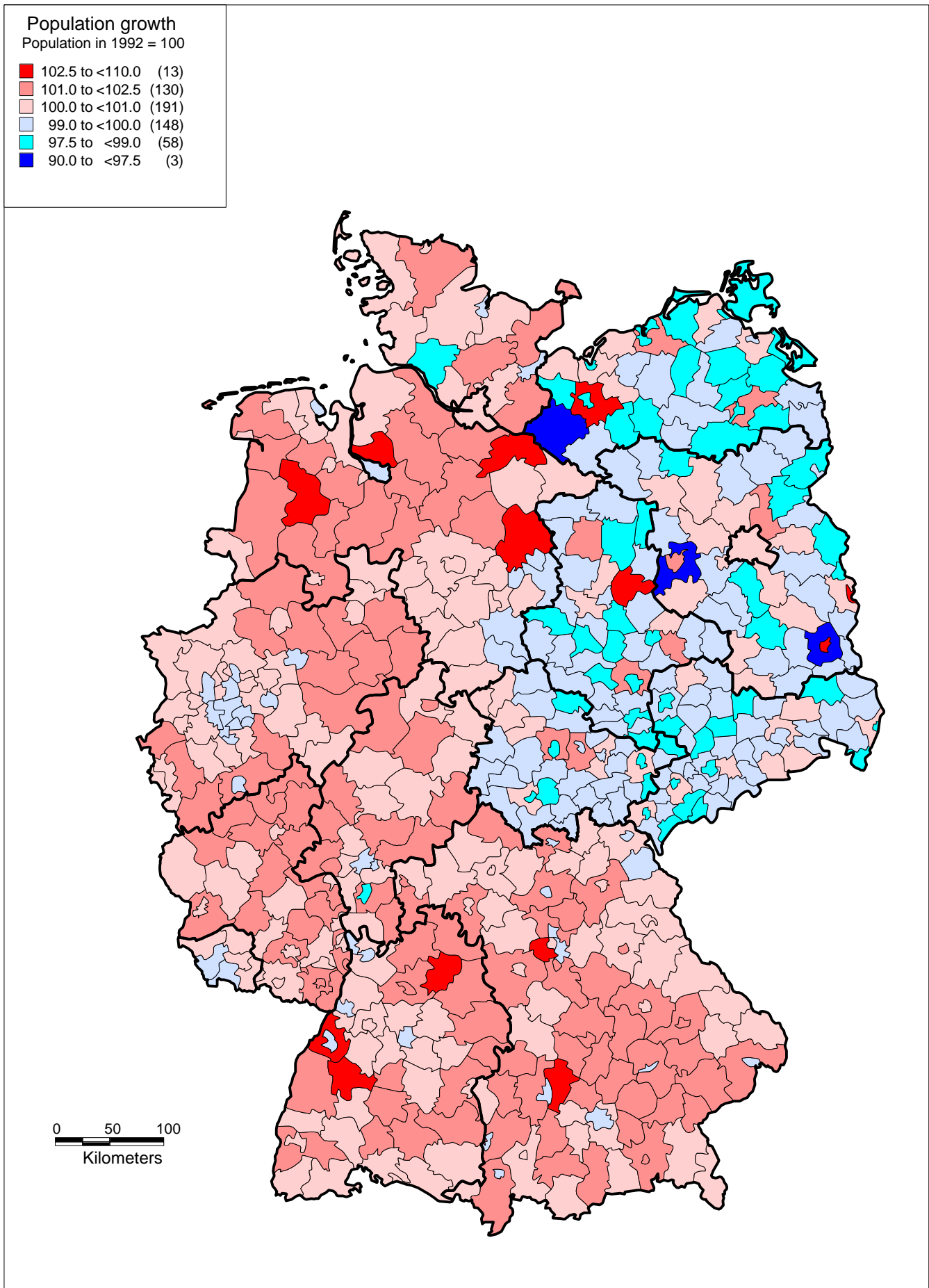
4.3 The pattern of net internal migration between 1984 and 1993 (total and by age)

In 1989 in the former GDR the migration pattern was dominated by the very strong position of two *Bezirke*: the capital city of Berlin and of Gera. These *Bezirke* gained population in all six broad age groups. Potsdam and Frankfurt *Bezirke* also gained population. The remaining 11 *Bezirke* have been losing population. Spatial scale for which the East German data for 1984 are available make it difficult to offer any more sophisticated analysis.

In West Germany the net migration pattern for all ages (Figure 4) has one clear dimension: losses from cities and towns with central functions, from old industrial agglomerations and from, in many cases, the hinterlands of some of the largest cities, in particular in the South. This latter phenomenon may suggest transformation of the settlement system's deconcentration from a suburbanisation phase to a counterurbanisation phase. The North was a strong gainer with only Lübeck declining due to migration into Schleswig-Holstein and a very few *Kreise* in Northern Niedersachsen. However, Bremen and Hamburg were losing population. Boundary effects along the frontier with East Germany and in particular with then Czechoslovakia were very visible, a phenomenon already identified in the Polish case study (Kupiszewski, Durham and Rees 1996). Munich and the *Kreise* surrounding it as well as extending towards the Alps form the largest growth pole of population. Net migration of children and adolescents (Figure 5) shows a very similar pattern.

The picture changes radically if we consider migration patterns of young adults seeking education (18-24 years; Figure 6). The first feature is the polarisation of the system: we observe in majority of units high changes, over 10 *pro mille*. Net gains are concentrated in cities offering university education, and sometimes as in the case of Munich also in the surrounding *Kreise*. The Ruhr agglomeration, despite various attractions for this age group, is a loser as is the former FRG capital city of Bonn and in the North Bremen, both despite availability of universities. Three working age groups - 25-29 years (Figure 7), 30-49 years (Figure 8) and 50-64 years (Figure 9) have in general patterns similar to the net migration pattern for all ages (Figure 4), with one or two peculiarities, such as negative migration increasing with age from the Ruhr

agglomeration or increasing with age dislike to the Frankfurt, Stuttgart and Munich areas.

Retirement migration (Figure 10) shows a pattern quite similar to the migration in the oldest working age group, with one difference: negative balances of migration from *Kreise* surrounding large agglomerations which are quite apparent for the age group 50-65 are less evident or completely disappear at all for the retirement ages.

The comparison of migration patterns in 1993 to those in 1984 will be decomposed into two separate comparisons for former FRG and GDR. Net migration patterns in 1993 for all ages (Figure 11) in former FRG differ in two ways: in 1993 a smaller territory experienced negative net migration largely due to the fact that what we called the frontier effect has been reduced substantially, an apparent result of German unification and economic co-operation with the Czech Republic. In some cases cities close to former German-German border, which in 1983 had negative migration balance, such as Kassel, Hof or Bayreuth, noted in 1993 a positive balance, evidently due to migration from new *Länder*. The inflow from the East is in fact the main reason of sharply reduced migration losses in the West. In the former GDR most of the Brandenburg Land around Berlin has been gaining population, but not Berlin (united) nor Potsdam nor Cottbus and neighbouring *Kreise*. Large cities have been losing population to their suburban areas, sometimes quite spectacularly, both in the South and in the North. The majority of East German territory is losing population to large extent to West Germany, not a very encouraging phenomenon.

The youngest age groups (Figure 12) together with their parents (Figure 14 and Figure 15) leave cities with central functions and old industrial centres and concentrates in more pleasant areas. In 1993 positive net migration balances of such areas were much higher than in 1983, as were negative ones, suggesting quite remarkable polarisation of preferences of migrants. In East Germany a striking development of population is visible along motorway linking Hannover with Berlin and further with Warsaw. It is traceable on the map depicting migration for all ages, but only the map showing migration of economically most active groups and their offspring shows the economic attraction of this communication axis.

The map of the migration of young adults aged 18-24 (Figure 13) in West Germany is similar to the one observed in 1984; however, the extent of areas losing population was much smaller in 1993. In East Germany Berlin is the main attraction.

Other large cities have been losing population, sometimes, as in the case of Schwerin, Plauen, Zwickau, Halle or Leipzig with the simultaneous positive net migration of adjacent *Kreise*.

The migration patterns of the older working age group and retired population (Figure 16 and Figure 17 respectively) are almost unaltered in comparison to 1984 patterns. In East Germany outflow prevails in the South and North, the latter in particular for retirement age migration.

The overall picture is one of suburbanisation and possibly traces of counterurbanisation and compensation of population losses in West Germany by the inflow of migrants from the East. Young adults, as we saw in British case study (Rees, Durham and Kupiszewski 1996) migrate against a general stream.

Figure 4: Net migration rate by Kreise, Germany 1983, all ages

Migration rates
Per 1000 population

■	10.0 to <100.0	(5)
■	5.0 to <10.0	(41)
■	2.5 to <5.0	(63)
■	0.0 to <2.5	(90)
■	-2.5 to <0.0	(66)
■	-5.0 to <-2.5	(34)
■	-10.0 to <-5.0	(22)
■	-100.0 to <-10.0	(7)
□	no data	(216)

0   50   100
Kilometers
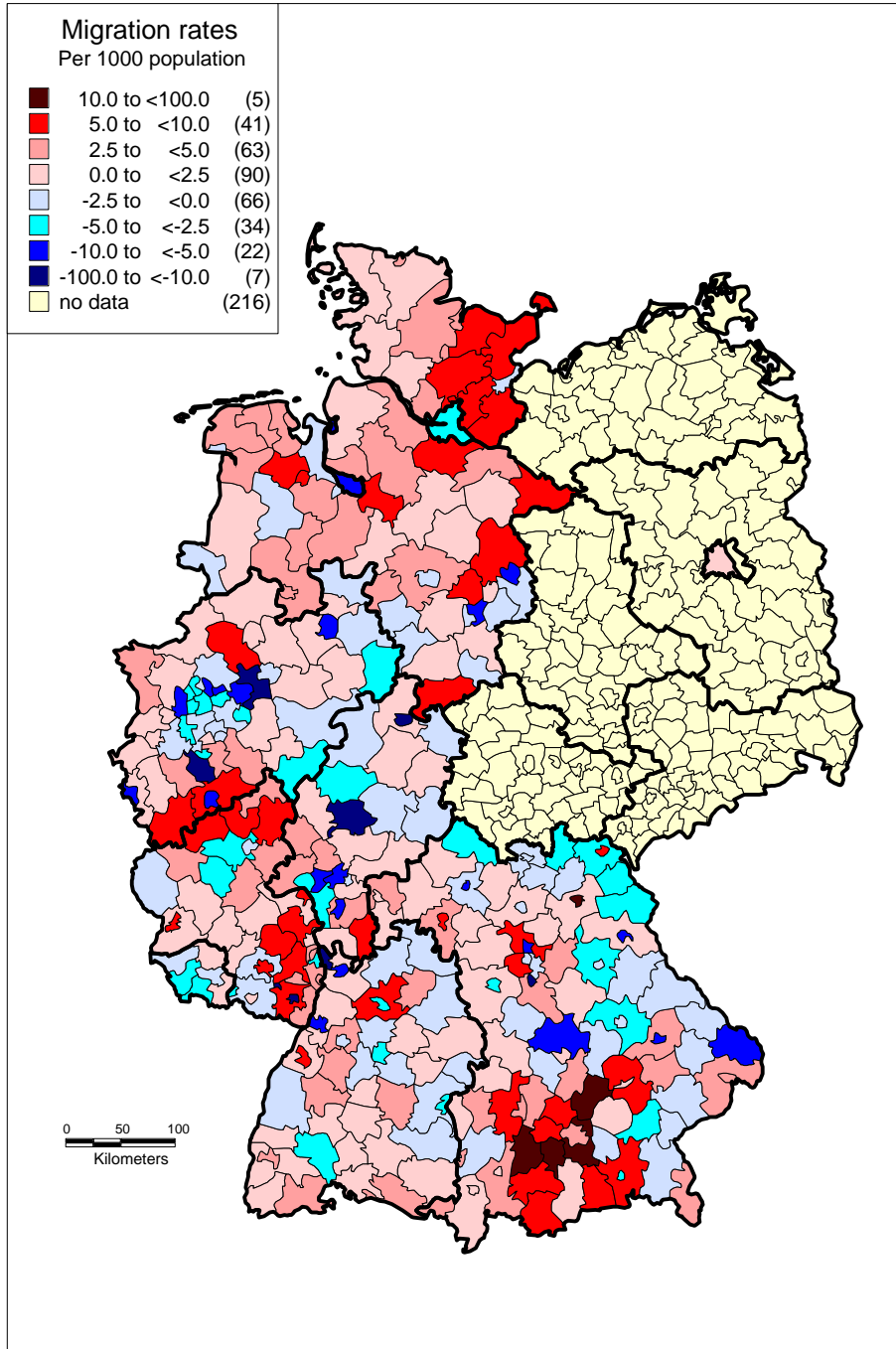
Figure 5:Net migration rate by Kreise, Germany 1984, ages 0-17

Migration rates
Per 1000 population

■	10.0 to <100.0	(3)
■	5.0 to <10.0	(47)
■	2.5 to <5.0	(68)
■	0.0 to <2.5	(86)
■	-2.5 to <0.0	(55)
■	-5.0 to <-2.5	(33)
■	-10.0 to <-5.0	(29)
■	-100.0 to <-10.0	(7)
□	no data	(216)

0   50   100
Kilometers
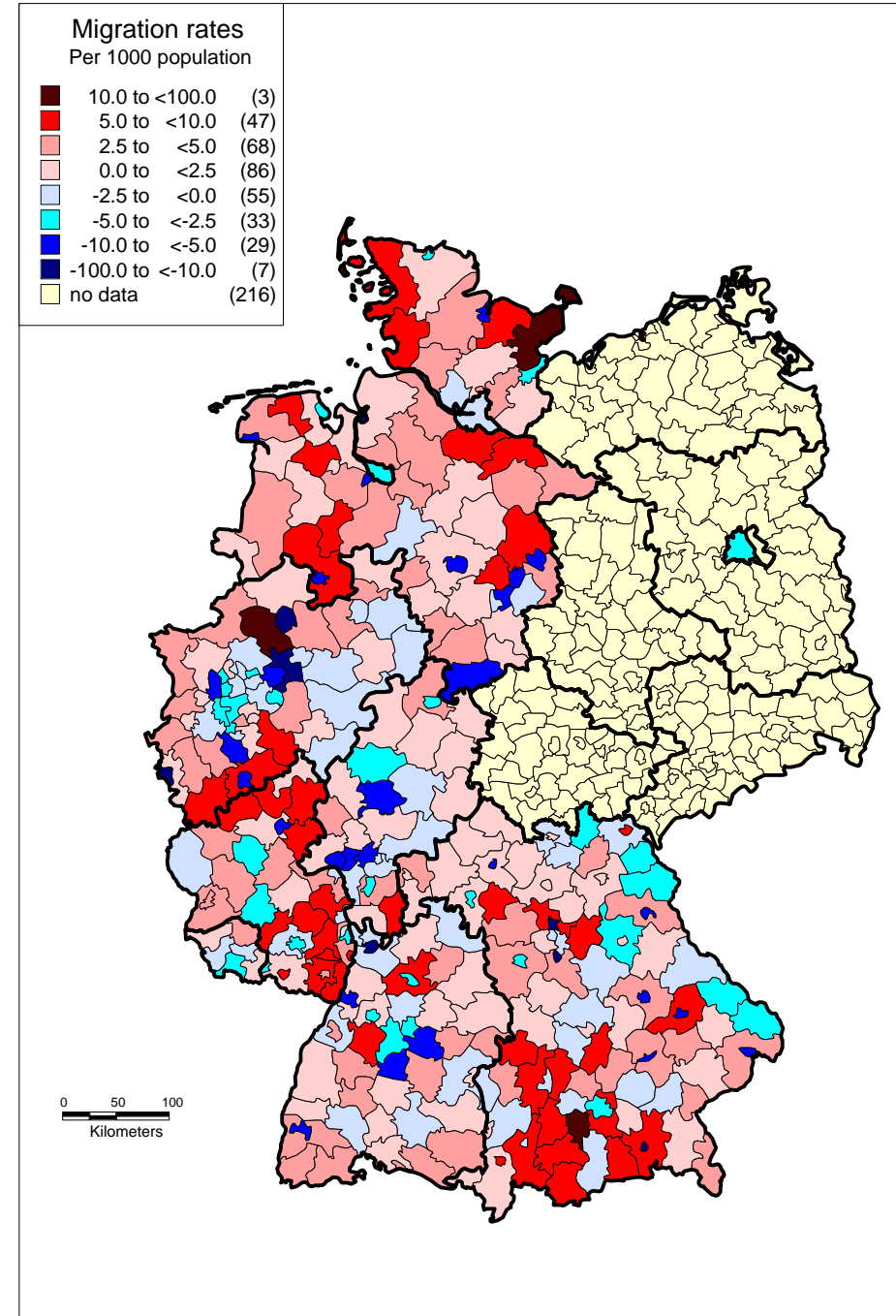
Figure 6: Net migration rate by Kreise, Germany 1984, ages 18-24

Migration rates
Per 1000 population

■	10.0 to <100.0	(52)
■	5.0 to <10.0	(17)
■	2.5 to <5.0	(6)
■	0.0 to <2.5	(12)
■	-2.5 to <0.0	(22)
■	-5.0 to <-2.5	(21)
■	-10.0 to <-5.0	(63)
■	-100.0 to <-10.0	(135)
■	no data	(216)

0 50 100
Kilometers
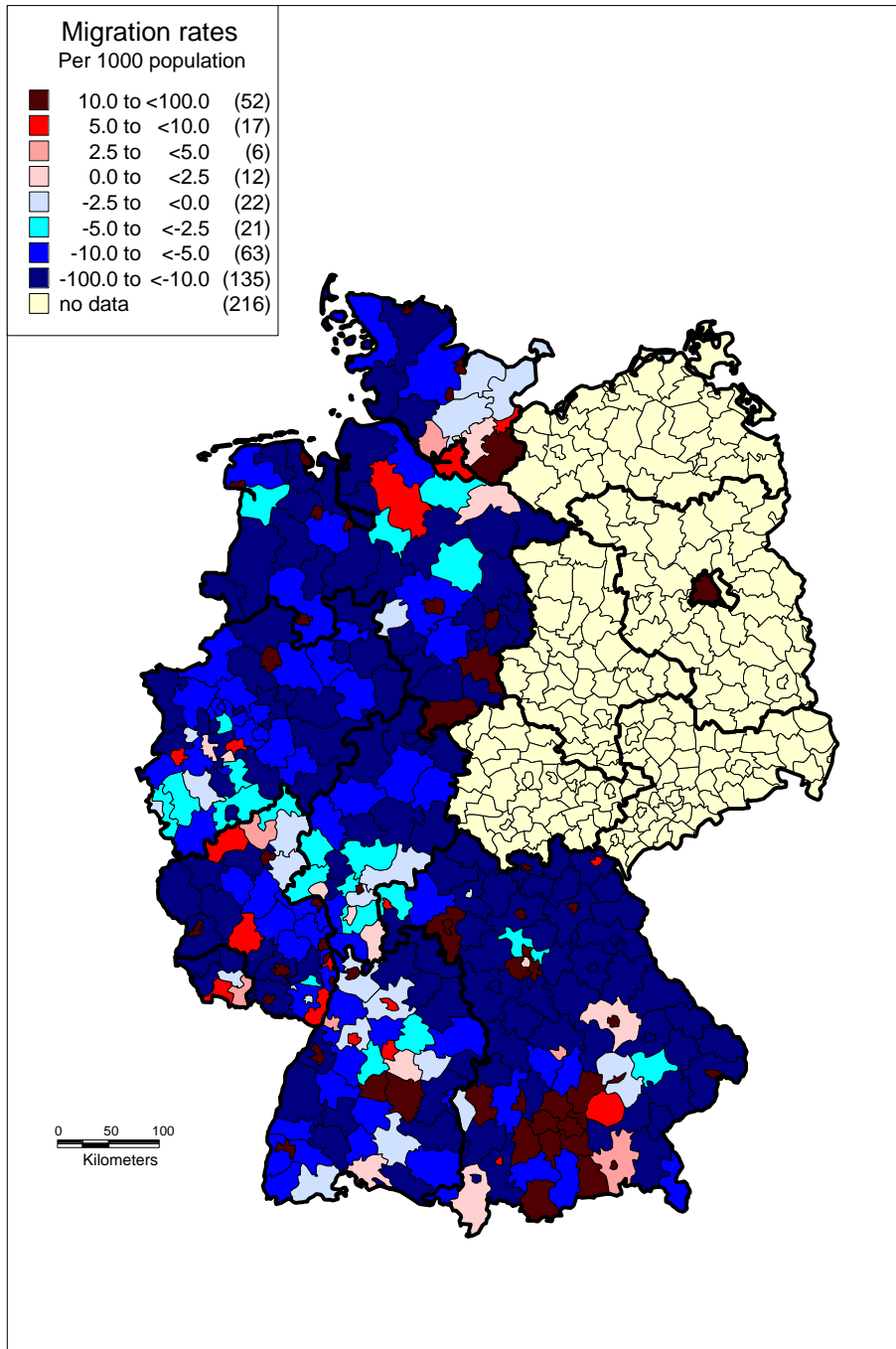
Figure 7: Net migration rate by Kreise, Germany 1984, ages 25-29

Migration rates
Per 1000 population

■	10.0 to <100.0	(104)
■	5.0 to <10.0	(59)
■	2.5 to <5.0	(22)
■	0.0 to <2.5	(27)
■	-2.5 to <0.0	(19)
■	-5.0 to <-2.5	(19)
■	-10.0 to <-5.0	(25)
■	-100.0 to <-10.0	(53)
■	no data	(216)

0 50 100
Kilometers
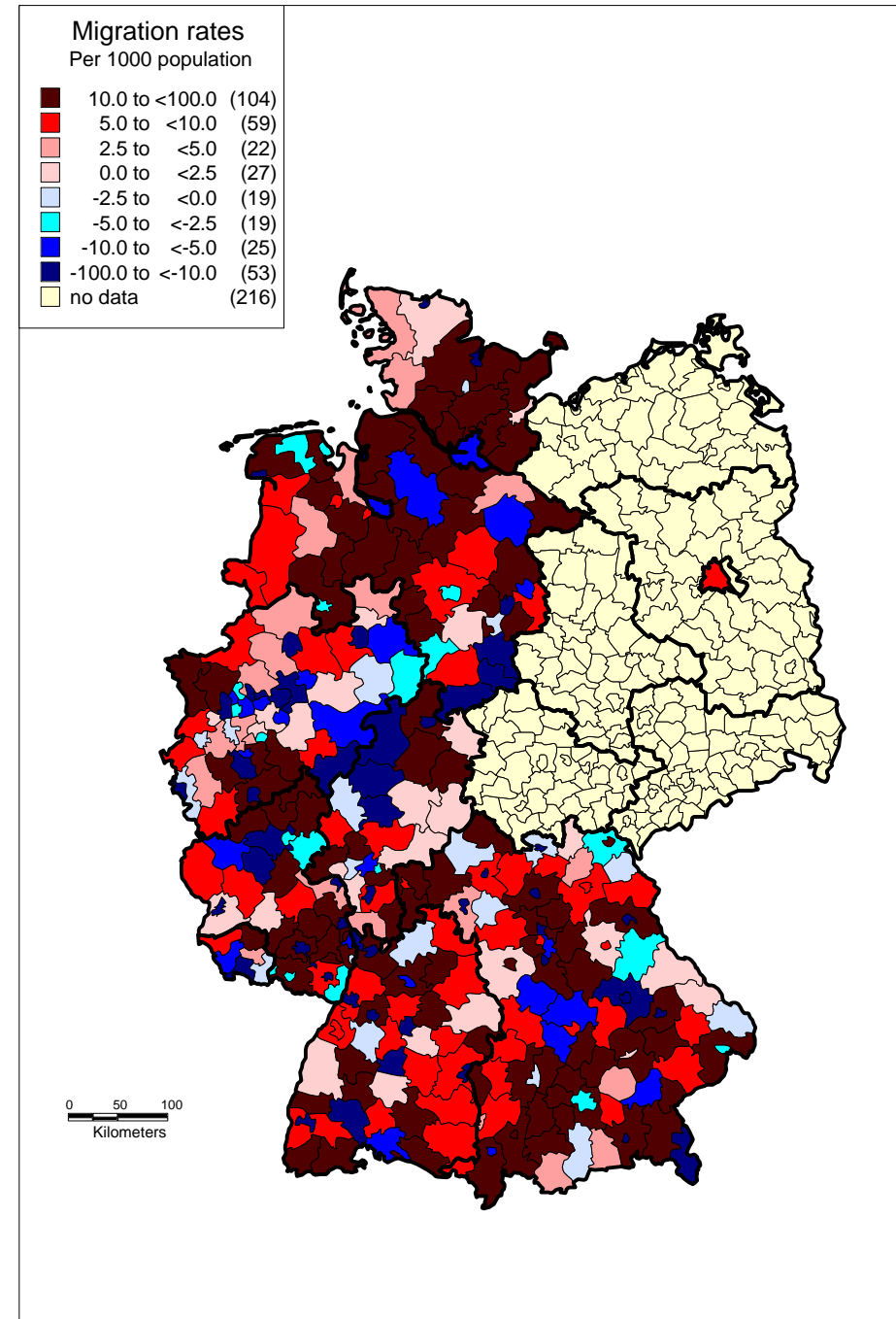
Figure 8: Net migration rate by Kreise, Germany 1984, ages 30-49

Migration rates
Per 1000 population

■	10.0 to <100.0	(14)
■	5.0 to <10.0	(66)
■	2.5 to <5.0	(66)
■	0.0 to <2.5	(85)
■	-2.5 to <0.0	(33)
■	-5.0 to <-2.5	(25)
■	-10.0 to <-5.0	(24)
■	-100.0 to <-10.0	(15)
■	no data	(216)

0   50   100
Kilometers
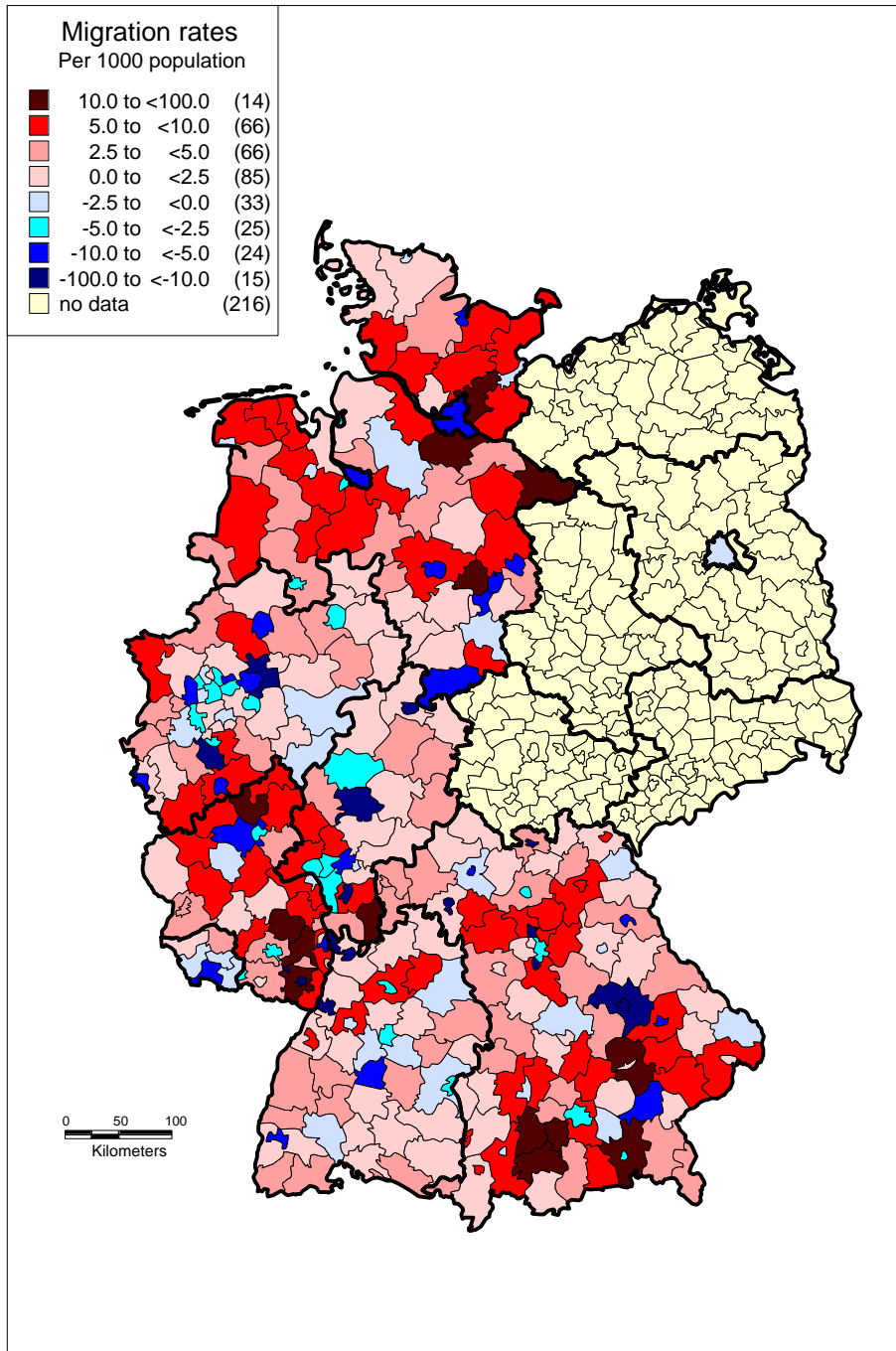
Figure 9: Net migration rate by Kreise, Germany 1984, ages 50-64

Migration rates
Per 1000 population

■	10.0 to <100.0	(6)
■	5.0 to <10.0	(51)
■	2.5 to <5.0	(68)
■	0.0 to <2.5	(100)
■	-2.5 to <0.0	(51)
■	-5.0 to <-2.5	(33)
■	-10.0 to <-5.0	(17)
■	-100.0 to <-10.0	(2)
■	no data	(216)

0   50   100
Kilometers
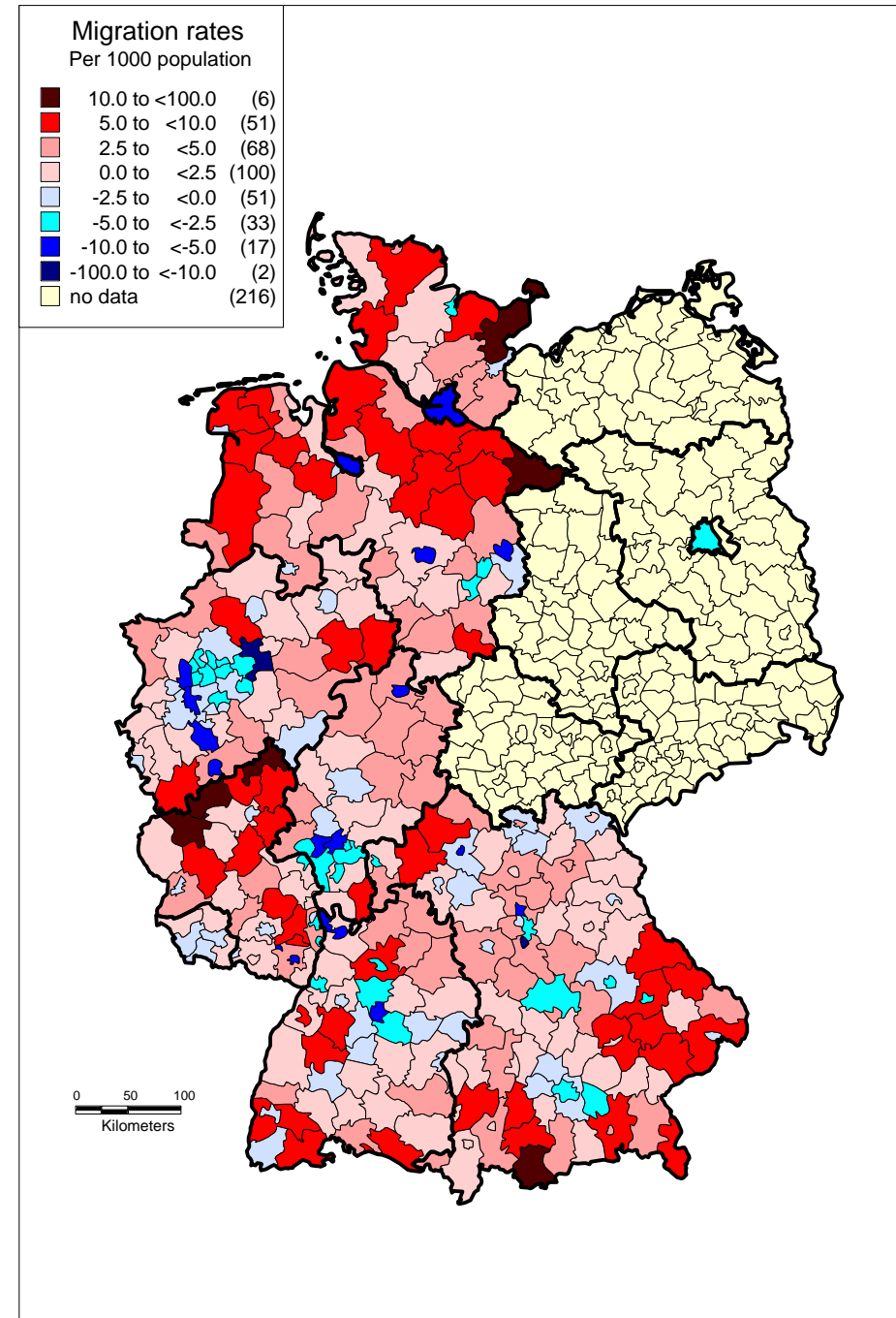
Figure 10: Net migration rate by Kreise, Germany 1984, ages 65+

Migration rates
Per 1000 population

■	10.0 to <100.0	(7)
■	5.0 to <10.0	(47)
■	2.5 to <5.0	(69)
■	0.0 to <2.5	(82)
■	-2.5 to <0.0	(64)
■	-5.0 to <-2.5	(33)
■	-10.0 to <-5.0	(25)
■	-100.0 to <-10.0	(1)
■	no data	(216)

0   50   100
Kilometers
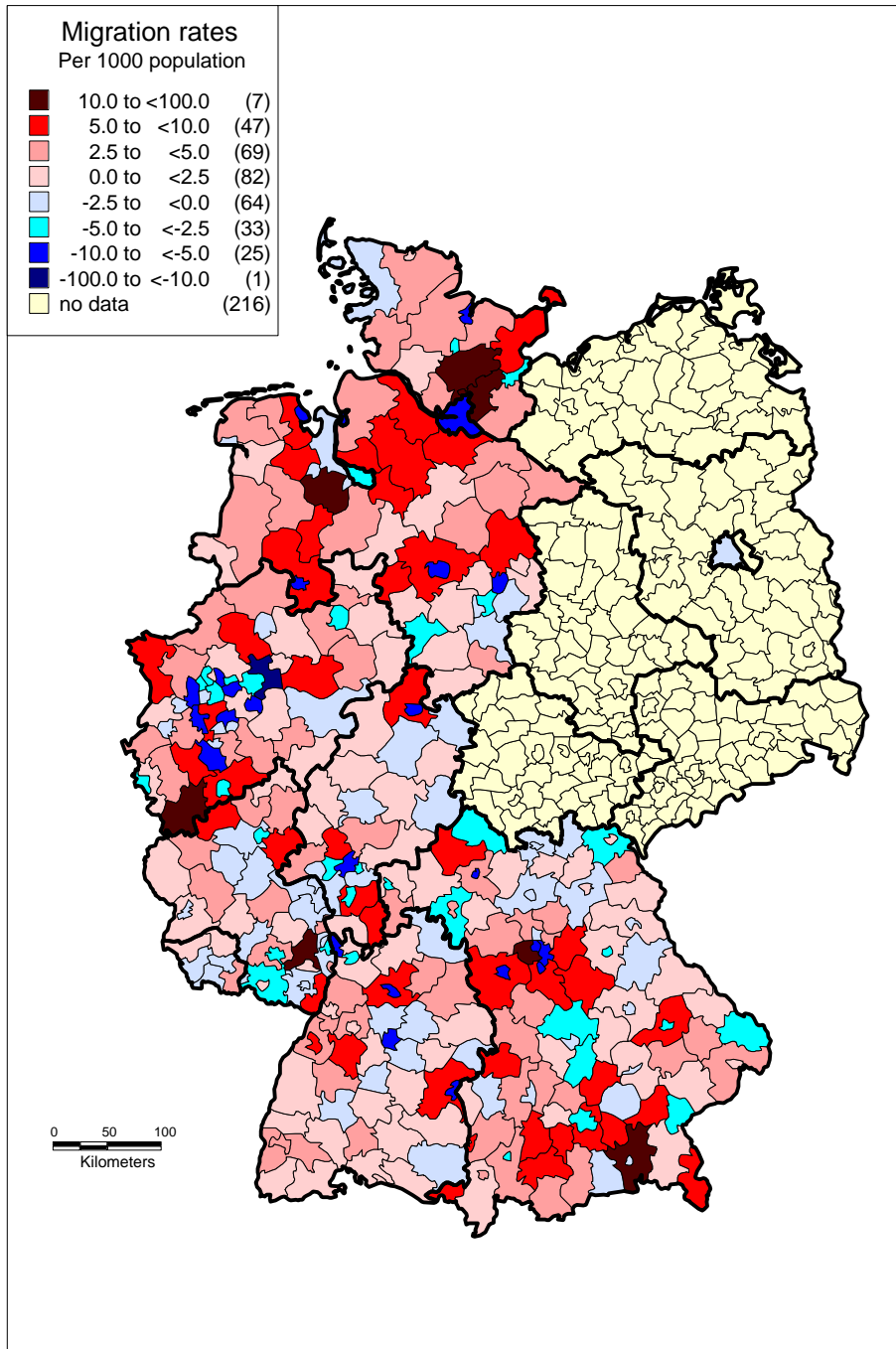
Figure 11: Net migration rate by Kreise, Germany, 1993, all ages

Migration rates
Per 1000 population

■	10.0 to <100.0	(46)
■	5.0 to <10.0	(108)
■	2.5 to <5.0	(78)
■	0.0 to <2.5	(74)
■	-2.5 to <0.0	(68)
■	-5.0 to <-2.5	(69)
■	-10.0 to <-5.0	(64)
■	-400.0 to <-10.0	(36)

0   50   100
Kilometers
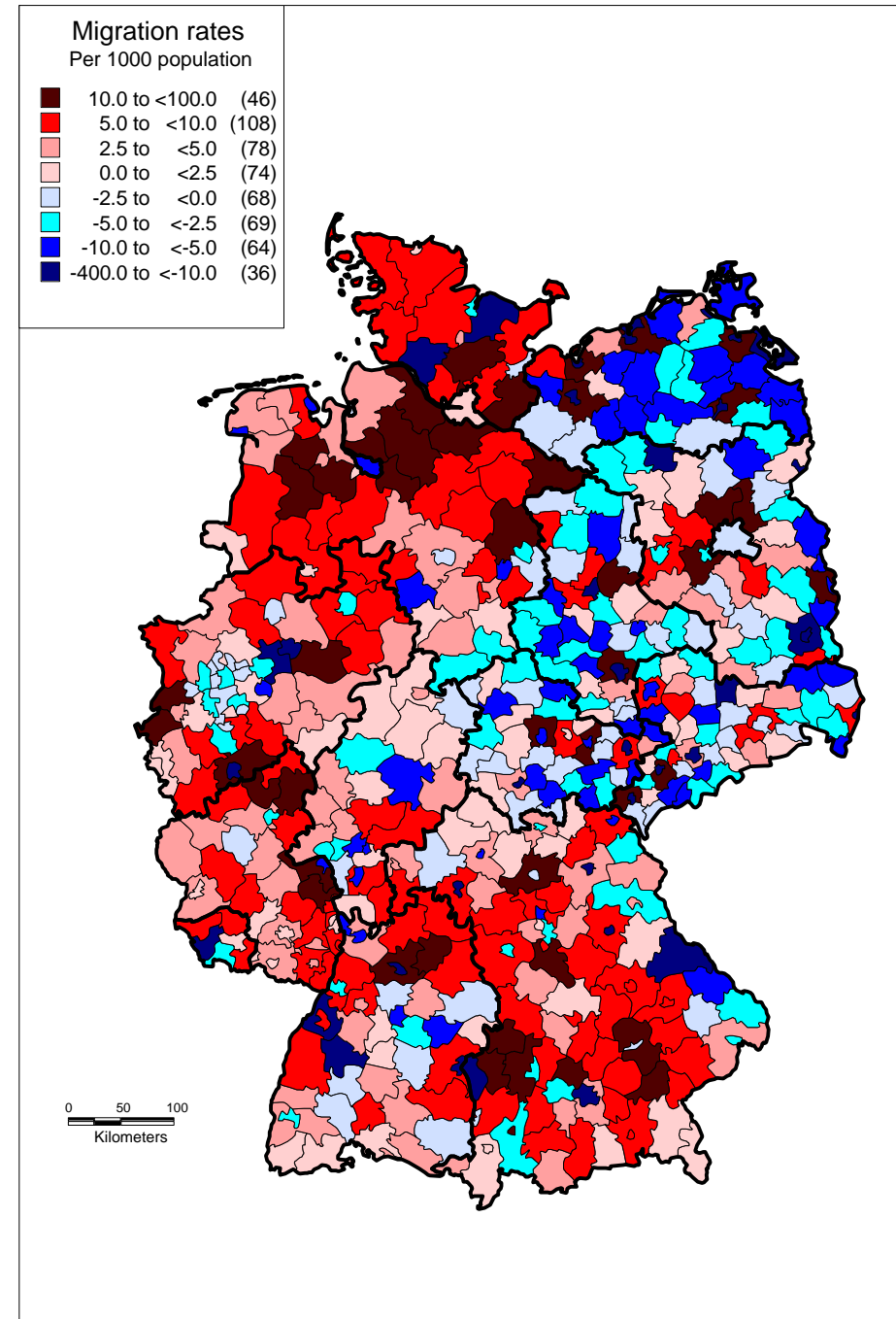
Figure 12: Net migration rate by Kreise, Germany, 1993, ages 0-17

Migration rates
Per 1000 population

■	10.0 to <100.0	(126)
■	5.0 to <10.0	(100)
■	2.5 to <5.0	(38)
■	0.0 to <2.5	(32)
■	-2.5 to <0.0	(53)
■	-5.0 to <-2.5	(44)
■	-10.0 to <-5.0	(72)
■	-500.0 to <-10.0	(78)

0   50   100
Kilometers
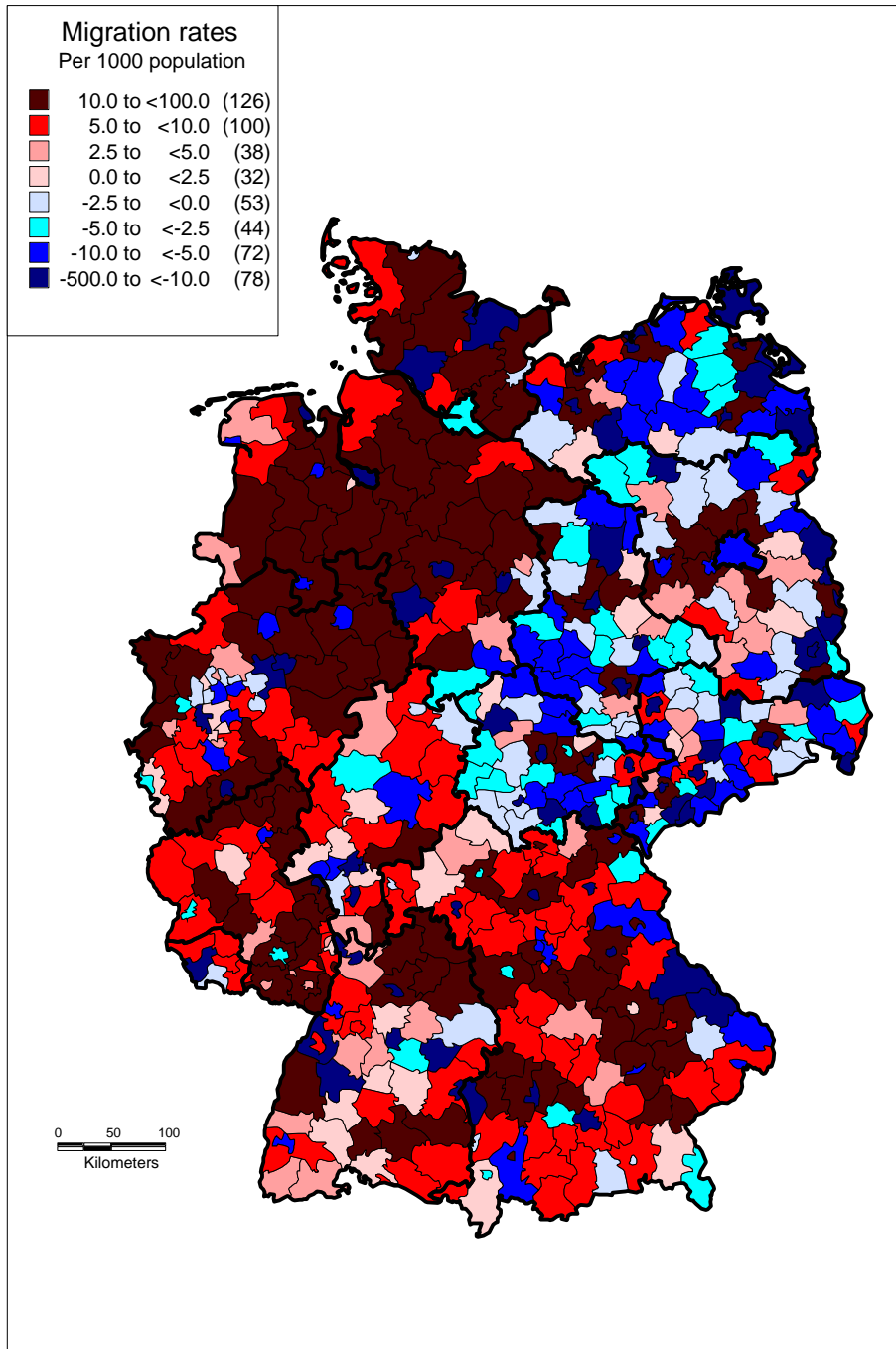
Figure 13: Net migration rate by Kreise, Germany, 1993, ages 18-24

Migration rates
Per 1000 population

■	10.0 to <100.0	(75)
■	5.0 to <10.0	(38)
■	2.5 to <5.0	(22)
■	0.0 to <2.5	(31)
■	-2.5 to <0.0	(46)
■	-5.0 to <-2.5	(40)
■	-10.0 to <-5.0	(89)
■	-500.0 to <-10.0	(202)

0   50   100
Kilometers
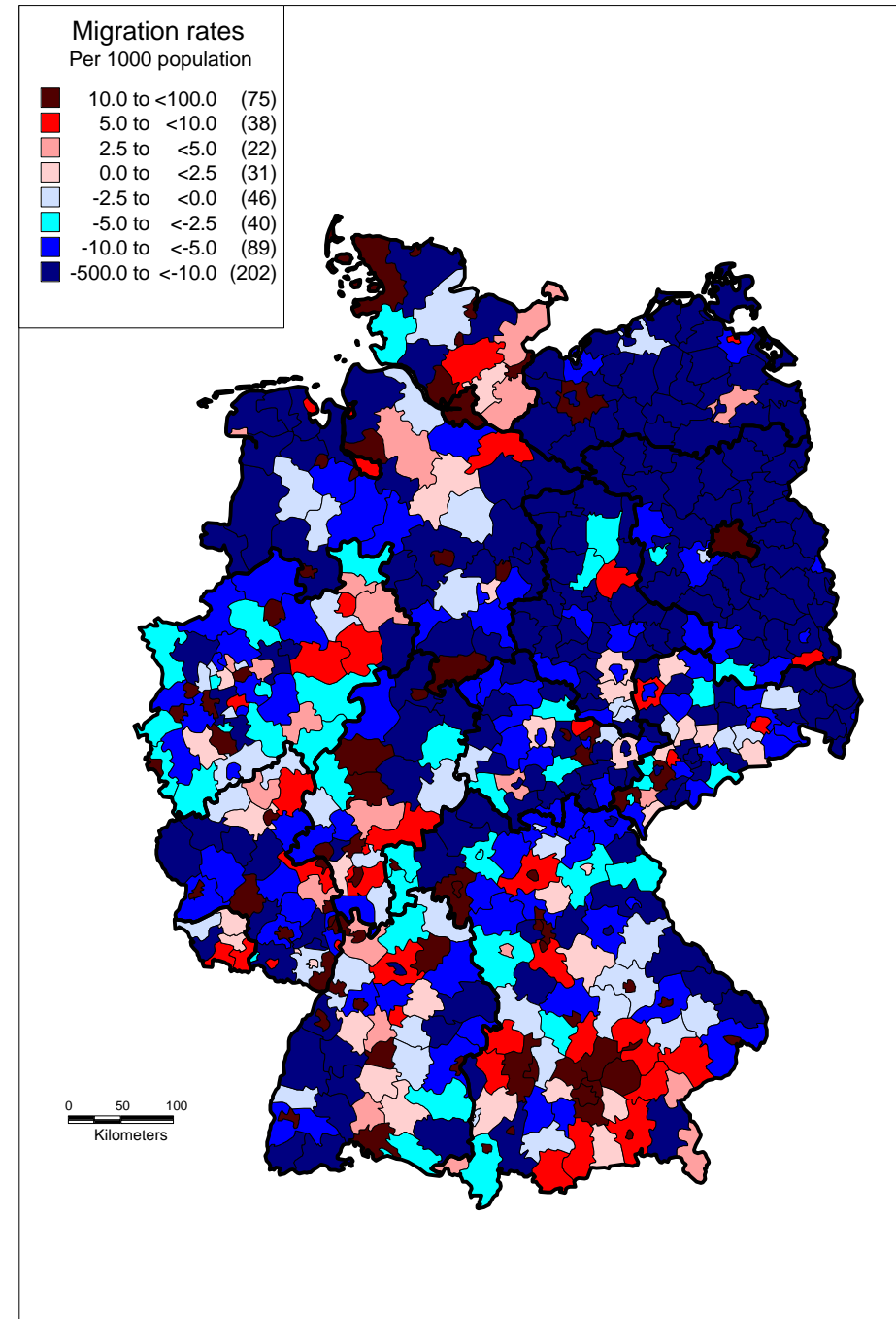
Figure 14: Net migration rate by Kreise, Germany 1993, ages 25-29

Migration rates
Per 1000 population

■	10.0 to <100.0 (126)
■	5.0 to <10.0 (72)
■	2.5 to <5.0 (33)
■	0.0 to <2.5 (45)
■	-2.5 to <0.0 (40)
■	-5.0 to <-2.5 (47)
■	-10.0 to <-5.0 (74)
■	-500.0 to <-10.0 (106)

0   50   100
Kilometers
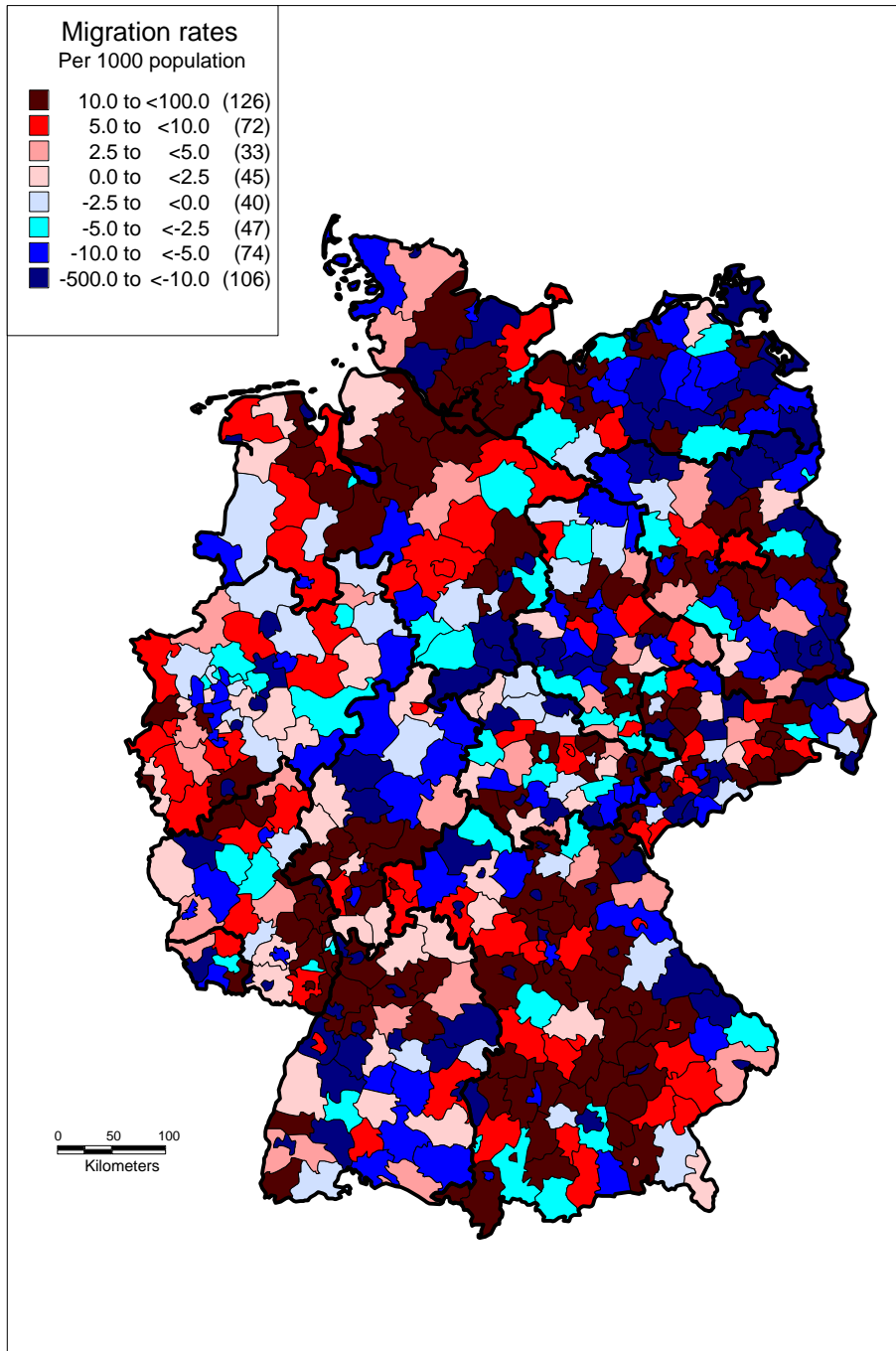
Figure 15: Net migration rate by Kreise, Germany, 1993, ages 30-49

Migration rates
Per 1000 population

■	10.0 to <100.0 (106)
■	5.0 to <10.0 (105)
■	2.5 to <5.0 (52)
■	0.0 to <2.5 (68)
■	-2.5 to <0.0 (58)
■	-5.0 to <-2.5 (45)
■	-10.0 to <-5.0 (48)
■	-500.0 to <-10.0 (61)

0   50   100
Kilometers
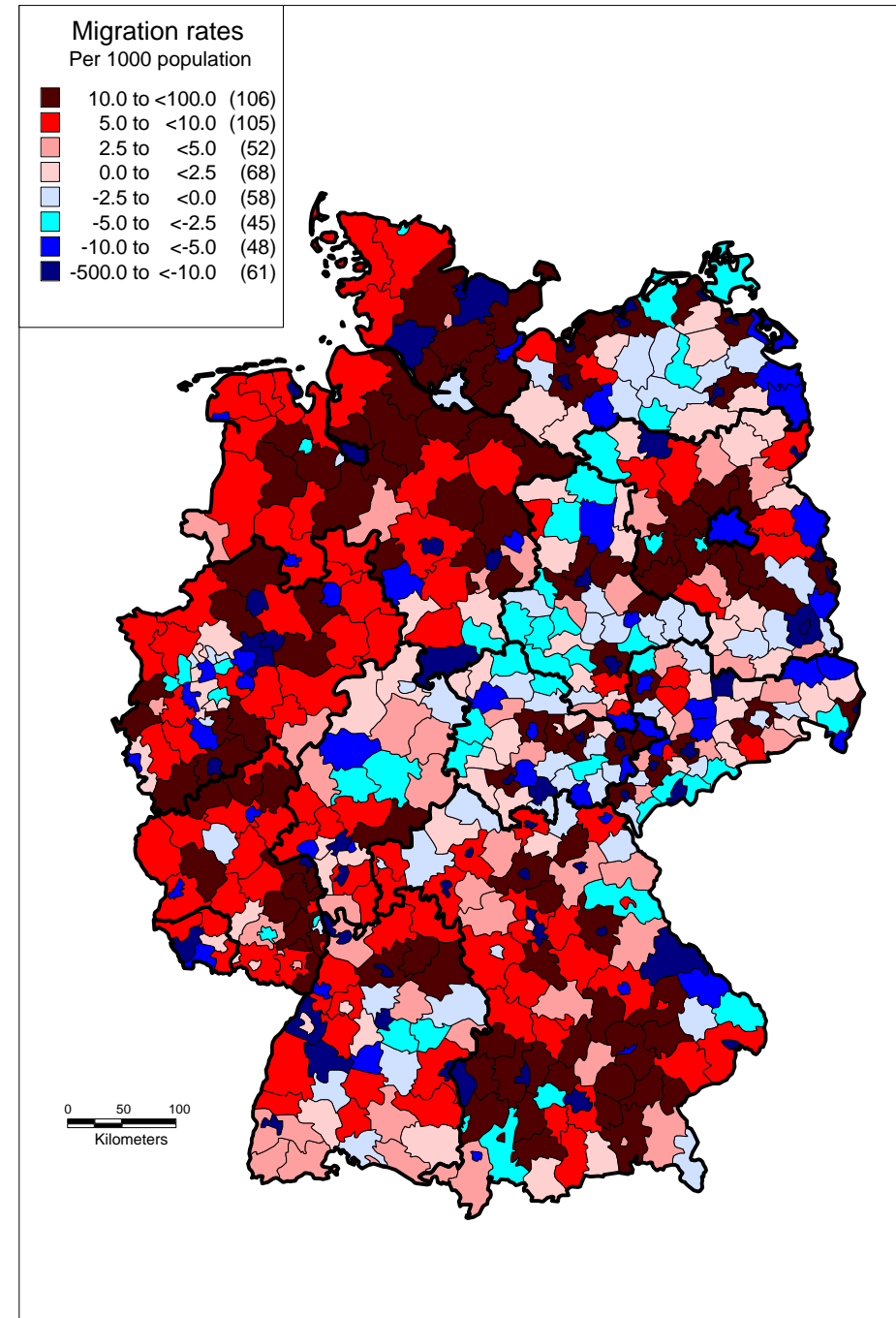
Figure 16: Net migration rate by Kreise, Germany, 1993, ages 50-64

Migration rates
Per 1000 population

■	10.0 to <100.0	(16)
■	5.0 to <10.0	(91)
■	2.5 to <5.0	(99)
■	0.0 to <2.5	(145)
■	-2.5 to <0.0	(99)
■	-5.0 to <-2.5	(63)
■	-10.0 to <-5.0	(24)
■	-500.0 to <-10.0	(6)

0   50   100
Kilometers
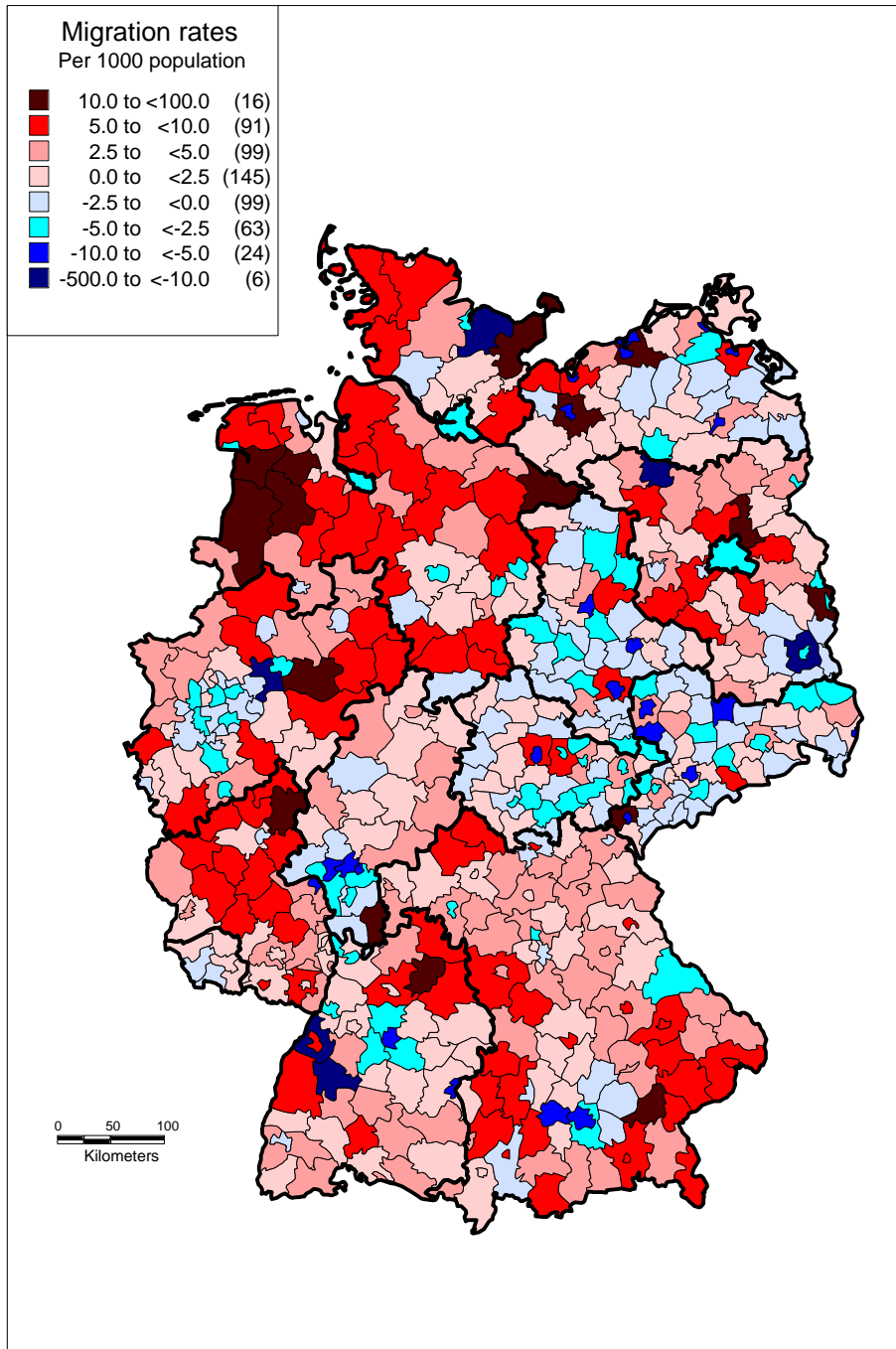
Figure 17: Net migration rate by Kreise, Germany, 1993, ages 65+

Migration rates
Per 1000 population

■	10.0 to <100.0	(11)
■	5.0 to <10.0	(83)
■	2.5 to <5.0	(91)
■	0.0 to <2.5	(136)
■	-2.5 to <0.0	(96)
■	-5.0 to <-2.5	(65)
■	-10.0 to <-5.0	(53)
■	-500.0 to <-10.0	(8)

0   50   100
Kilometers
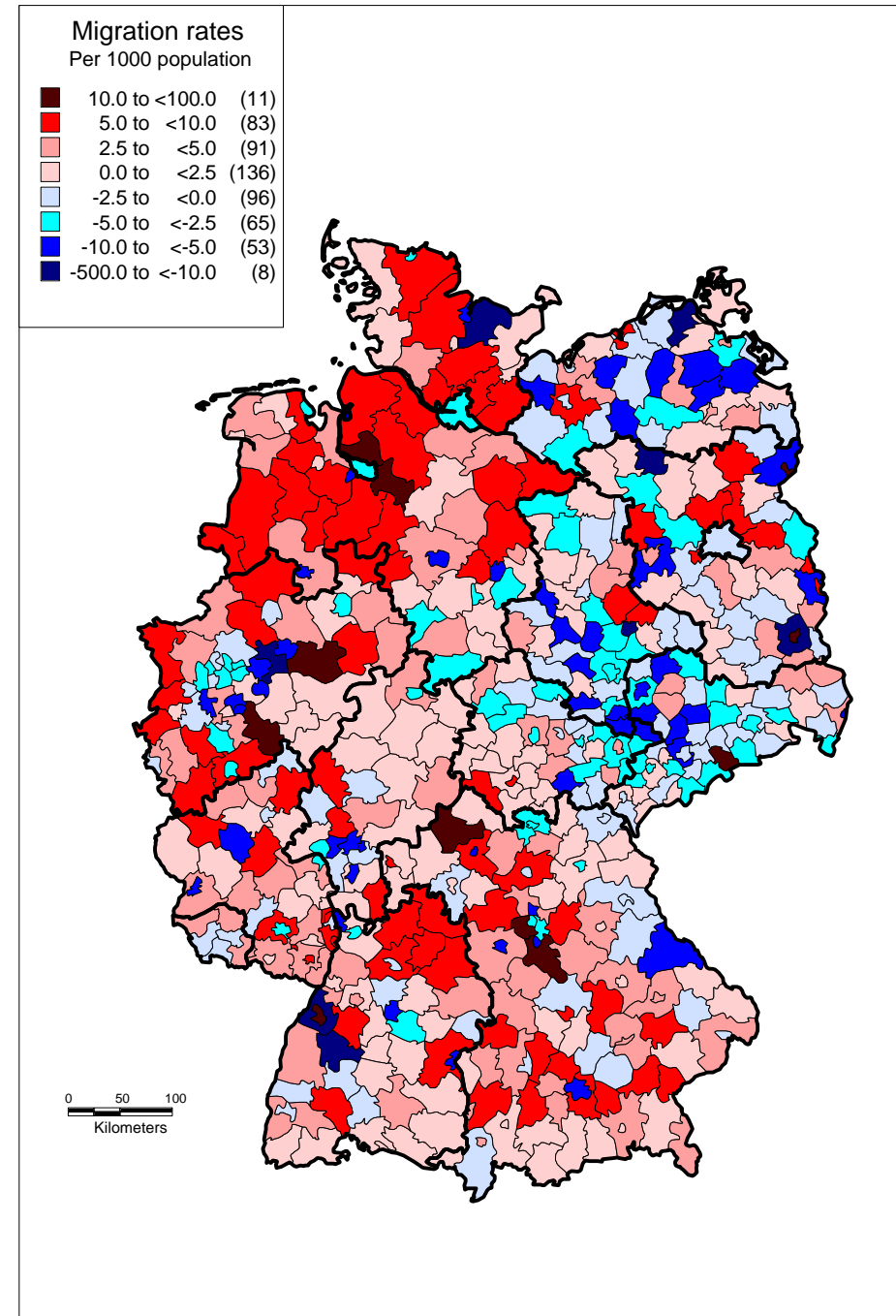
5. RELATIONSHIP TO THE URBAN SYSTEM: POPULATION DEVELOPMENT IN THE CITY REGIONS

In the 1980s 44 city regions were formed in the old *Länder*. They resulted from the aggregation of *Gemeinden* and form agglomeration areas with high density. The criterion for deciding whether a *Gemeinde* counts as part of agglomeration area was the extent of commuter interconnection between the centre and the surrounding *Gemeinden*.

The city regions show the high population density in West Germany. In the 1980s, almost three quarters of the total population lived in city regions. The share rose in the decade under consideration, not least because the most important growth factor, international migrants, established themselves preferentially in the agglomerations, and there, in turn, in the key cities. As a result, the increase in population in the city regions of 10.6% over 10 years was considerably higher than the growth of the total population (+7.8%)

The city regions are very heterogeneous in terms of their size (population) and their dynamics. Size varies from 12 million people (Rhine-Ruhr) to less than 150,000 (Neumünster). The degree of concentration within the city system is high. By 1984, 11 city regions already had more than 1 million inhabitants. Some 31.4 million people lived in those regions - over 70% of all city region inhabitants. Twelve city regions had fewer than 250,000 inhabitants - these regions contained only 5% of all inhabitants.

Over time, two phases can be distinguished - first of all one with low dynamics (+ 2.8% between 1984 and 1989) and one with stronger dynamics (+7.6% between 1989 and 1994). In the first 5-year period 8 city regions recorded population decreases; but none in the next 5-year period. This was a period with strong external migration gains.

Over the whole decade there was only one city region with decreasing population (Wilhelmshaven), 12 regions with an increase of less than 5%, 17 regions had growth of 5-10%, 14 regions had an increase of over 10% and 14 regions had an increase of over 10%. The large increases were found in the small city regions, mainly those with around 300,000 inhabitants. Among the large city regions with more than 1

million inhabitants, only a few in the south- Rhein-Main, Rhein-Neckar, Nürnberg and Stuttgart - had higher increases, between 8 and 10%.

The *Gemeinden* of the Federal Republic of Germany are classified into 17 *Gemeinde* types. These are defined according to three characteristics: number of inhabitants, location in the settlement structure and centrality.

For the *Gemeinden* of the old *Länder*, comparisons can be drawn up for the time between 1984 and 1994. The results confirm the findings for the city regions, but further differentiation is necessary for the development *inside* the agglomeration.

We can clearly see that in the second 5-year period population change shows a steep drop from the key centres to the surrounding areas, and thus the key centres had lower population increases, while the *Gemeinden* far from key centres (in *Kreisen* with low density) had high rates of growth. One especially noticeable and politically unwanted trend is that upper and middle sized centres in the surrounding areas have lower growth than the other *Gemeinden* without central place functions. This leads in the long term to an ecologically questionable over-development of the countryside, contrary to the environmental planning concept of "decentralised concentration". The trigger for development is the mechanism of land prices. The choice of where to live is strongly influenced by living costs, both in setting up home (moving in) and building and land costs. The low land price levels in the regions far from key centres has, since the 1970s, caused a high intensity of house building with more than proportional number of sites ready for building on - measured in relation to the existing housing stock. This suburbanisation of housing frequently leads to first-time purchases creating influxes of arrivals from the denser centres.

Small-scale migration movements lead to a separation of the population corresponding to their life style. People who have a professional career chose mainly the urban centres as their place of residence. People who pursue a family career move to the edges of agglomerations or to the regions with rural characteristics. Population dynamics are therefore not only generated through migration (active suburbanisation), but also by the reproductive behaviour of the mobile population resulting in birth surpluses in the surrounding countryside and death surpluses in the key centres (passive suburbanisation).

6. RELATIONSHIP TO POPULATION SIZE

The three bands of smallest *Kreise* (Table 3) have been losing population in all three periods under consideration. Significant loses - more than 13.4% over the period 1984-1993 affected size band 25 000 to 50 000 inhabitants. The gainers were three largest bands, with the band 250 000 to 500 000 thousand ahead the others. The migration matrix in 1993 (Table 4) shows somewhat more complicated picture: The band with the smallest *Kreise* has been losing population to all other bands. In similar situation was the band with *Kreise* over 500 000 which was losing population to all bands but the band with the smallest units. The largest gainer is the band 100000 to 250000 inhabitants, apparently favoured for comprehensive services it can offer without spoiled environment, traffic jams and insecurity of largest agglomerations. Efficiency of migration is extremely high in the exchange of the band with smallest units with all other bands and oscillating around 40. All other exchanges are either totally inefficient (efficiency of migration less than 3) or with low efficiency.

7. RELATIONSHIP TO POPULATION DENSITY

7.1 Geographical patterns of population density

New *Länder*, with exception of Southern and South Western parts, have substantially lower population density than old *Länder* (Figure 18). In particular rural areas north from the Berlin-Hannover motorway and a ring of *Kreise* surrounding the Berlin agglomeration on the south have very low population densities. There is a massive concentration of population in cities and fairly even spread in the urbanised areas.

7.2 Relation between population density, population growth and migration

Population growth of different density bands (Table 2) has been negative for the less densely populated areas (less than 50 inhabitants per square kilometre) and positive for low and medium densities (50 - 1000 persons per square kilometre) in all time periods

under consideration. The highest density band - large urban agglomerations - have been gaining population in both longer periods 1984-1989 and 1984-1993, but in the last year - 1992-1993 this growth has stopped. The second highest density band 1000-2000 inhabitants per square kilometre has in all temporal cross-sections small decreases of population. The overall picture shows moderate increase of the most densely populated areas, the largest cities, small decreases for areas with high but not the highest population density and decreases in sparsely populated rural areas. The balance of migration (Table 5) shows that the first three bands (0-500 inhabitants per square kilometre) have been losing population to all higher bands but the highest, a loser itself. Medium to high density bands (500-1000) have gained from all other bands.

High migration efficiency (10% and more) occurs in the exchanges between the band with densities below 500 persons per square kilometre and the two immediately higher bands as well as in migration from these two bands to the top density band. It is characteristic that exchanges of population between the 500-1000 and 1000-2000 bands is completely inefficient, what suggests little difference between these two bands, from the point of view of migrants. Low efficiency is typical to extreme values of population density bands.

Population flows in Germany demonstrate a strictly hierarchical system with flows from lower density to higher density bands with the notable exception of the most densely populated areas. This pattern has been observed also in Poland (Kupiszewski, Durham, Rees 1996). The flows are most efficient for the central section of the density bands, as well as between the top density and two densities immediately below, suggesting strong determination of migrants leaving most populous areas.

Table 2: Population, population change and natural increase by density bands, Germany

Density band (persons per square km)	Population in				Natural increase	Population increase		
	1984	**1989**	**1992**	**1993**	**1993**	**1984-89**	**1984-93**	**1992-93**
0-<50	1379039	1350868	1292163	1280805	-8726	97.96	92.88	99.12
50-<100	7483253	7509790	7509505	7555762	-10929	100.35	100.97	100.62
100-<500	37376128	37410251	38713057	39034168	-19307	100.09	104.44	100.83
500-<1000	7675627	7888606	8128894	8155543	726	102.77	106.25	100.33
1000-<2000	9270608	8981299	9117470	9114094	-15860	96.88	98.31	99.96
2000-<4000	14524561	15807701	16213430	16197718	-44717	108.83	111.52	99.90
Total	77709216	78948515	80974519	81338090	-98813	101.59	104.67	100.45

Table 3: Population, population change and size bands of *Kreise*, Germany

Origin by size band of Kreise	Population in				Natural increase	Population index		
	1984	**1989**	**1992**	**1993**	**1993**	**1984-89 1984=100**	**1984-93 1984=100**	**1992-93 1992=100**
10000-25000	231777	227791	214835	213622	-1383	98.28	92.17	99.44
25000-50000	427829	3821541	3699216	3694867	-22939	89.32	86.36	99.88
50000-100000	122903	11388393	11043938	11025557	-49491	92.66	89.71	99.83
100000-250000	276986	28526935	29757132	30007573	-225	102.99	108.34	100.84
250000-500000	192955	20711819	21432617	21548349	1916	107.34	111.68	100.54
over 500000	139146	14272036	14826781	14848122	-26691	102.57	106.71	100.14
Total	777092	78948515	80974519	81338090	-98813	101.59	104.67	100.45

Table 4: Net migration and migration effectiveness ratios in 1993 by size band of *Kreise*, Germany

Origin by size band of Kreise	Destination by size band of Kreise					
	10000-25000	25000-50000	50000-100000	100000-250000	250000-500000	over 500000
10000-25000		*39.*	*38.*	*41.*	*38.*	*35.*
25000-50000	-315.		*1.*	*2.*	*1.*	*5.*
50000-100000	-851.	339.		*4.*	*1.*	*3.*
100000-250000	-3413.	-1790.	-8498.		*3.*	*7.*
250000-500000	-2037.	290.	-1406.	14692.		*4.*
over 500000	-1155.	1573.	3003.	23570.	9094.	
Total	-7772.	726.	-6389.	51964.	-2445.	-36084.

Note: Migration effectiveness = absolute value of net migration divided by gross migration and expressed as a percentage.

Table 5: Net migration and migration effectiveness ratios in 1993 by population density class, Germany

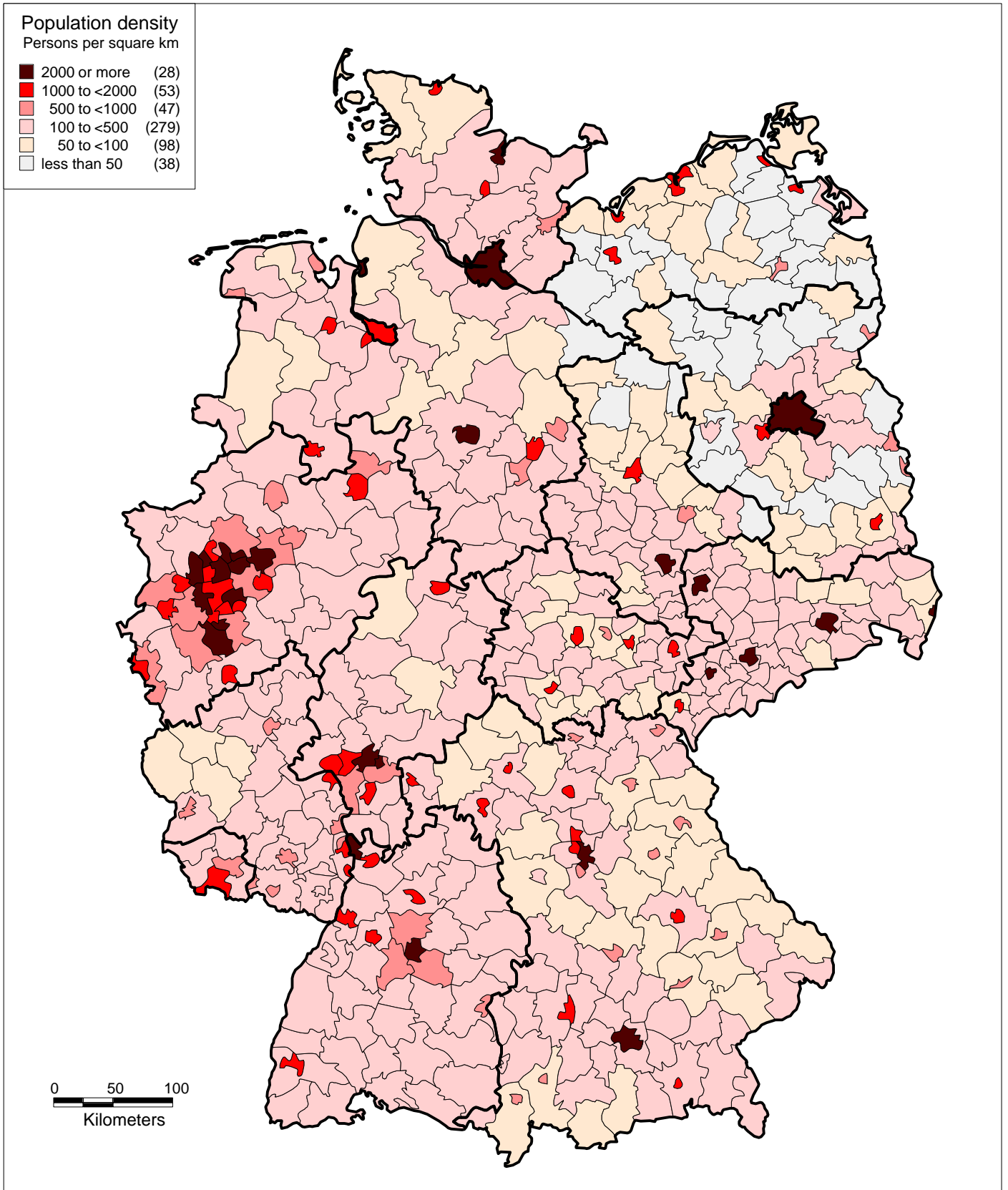| Origin band of population density	Destination band of population density					
	0-50	50-100	100-500	500-1000	1000-2000	2000-4000
		Males				
0-50		*2.*	*2.*	*12.*	*12.*	*3.*
50-100	-2092.		*0.*	*11.*	*10.*	*5.*
100-500	-1972.	-92.		*11.*	*10.*	*5.*
500-1000	-53649.	-34220.	-29915.		*0.*	*15.*
1000-2000	-9254.	-5872.	-5131.	782.		*15.*
2000-4000	358.	429.	389.	5143.	892.	
Total	-66609.	-37663.	-32594.	123710.	20367.	-7211.

Note: Migration effectiveness = absolute value of net migration divided by gross migration and expressed as a percentage.

Figure 18: Population density in Germany in 1993

Population density
Persons per square km

- 2000 or more (28)
- 1000 to <2000 (53)
- 500 to <1000 (47)
- 100 to <500 (279)
- 50 to <100 (98)
- less than 50 (38)

0   50   100
Kilometers

8. RELATIONSHIP TO THE FUNCTIONAL CLASSIFICATION

A very brief explanation of the classification used is given Table 1; a geographical pattern of *Kreise* is shown Figure 19. The highest gains of population - over 7% between 1984 and 1993 was observed in type 1 and 2 *Kreise* (Table 6), that is central cities or cities with more than 100000 inhabitants and highly urbanised *Kreise* forming a part of regions with large urban agglomerations. The former category noted marginal losses of population in 1992-1993. Central cities forming the cores of regions with tendencies towards urbanisation (type 5) had stable populations over time. The losers were urbanised *Kreise* and *Kreise* with rural features (types 3 and 4) belonging to the regions with large urban agglomerations. In contrast the *Kreise* of types 6 and 8 (urbanised *Kreise* belonging to regions with tendencies towards urbanisation and regions with rural features) noted moderate growth.

Clearly the growth of population is concentrated in the cities with central functions, both the largest and local capitals in all types of regions as well as urbanised areas outside the largest agglomerations. This growth is induced by inflow of international migrants and in old *Länder* also by inflow of migrants from new *Länder*. Urbanised areas and rural areas belonging functionally to the largest agglomerations have been losing population over the last decade, but started to gain in the last year of analysis - possibly due to advancement in the process of counterurbanisation, which is a logical suggestion given losses of population in the largest centres in this year.

Migration data from 1993 confirm the change of the trend prevailing in the years 1984-1993. The analysis of net migration (Table 7), showing gains down the hierarchy within regions with large urban agglomerations coupled with a very high migration efficiency in the exchange between two top (1 and 2) and two bottom types (3 and 4) of *Kreise*. Similar processes can be observed for flows between different types of *Kreise* forming regions with tendencies towards urbanisation. Only in regions with rural features is the flow towards the top of hierarchy visible.

Generally in 1993 the losing *Kreise* are those forming central cities in all types of regions and rural *Kreise* in regions showing rural features. In other words these *Kreise* with a moderate level of urbanisation, good facilities, within commuting

distance to central cities are attractive but at the same time reasonably calm with good access to the countryside.

Figure 19: Kreise by Settlement Type, 1993

Settlement type
(see Table 1 for explanation)

- 1-I (47)
- 2-I (53)
- 3-I (44)
- 4-I (41)
- 5-II (28)
- 6-II (95)
- 7-II (74)
- 8-III (64)
- 9-III (97)

0   50   100
Kilometers
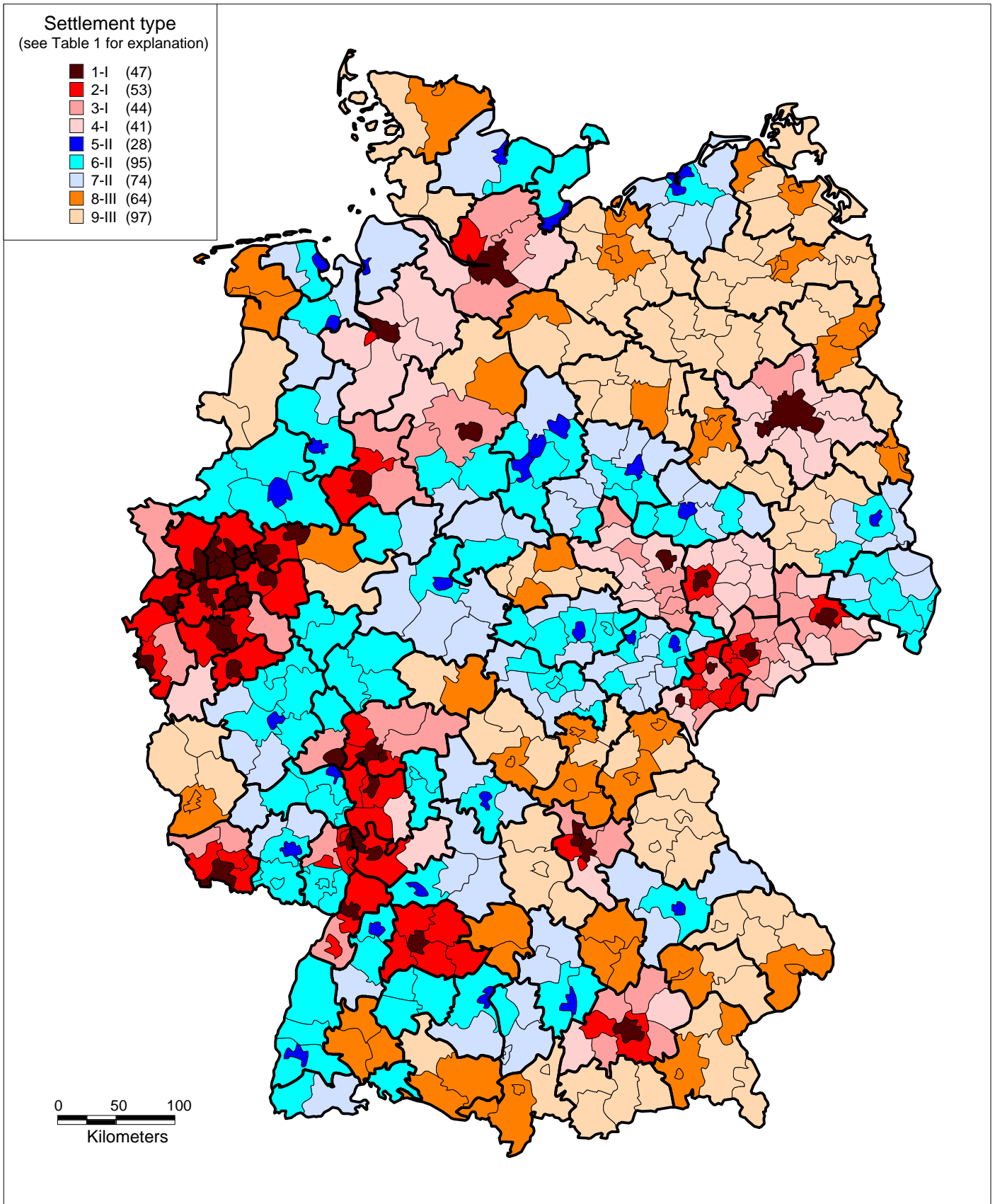
Table 6: Population, population change and natural increase by settlement type, Germany

Settlement type	Population in				Natural increase	Population index		
	1984	**1989**	**1992**	**1993**	**1993**	**1984-89 1984=100**	**1984-93 1984=100**	**1992-93 1992=100**
1	19027560	19945038	20463180	20444725	-50004	104.82	107.45	99.91
2	12108298	12480169	12906899	12982118	2196	103.07	107.22	100.58
3	6689370	6276547	6501194	6548733	-11365	93.83	97.90	100.73
4	3628787	3330331	3373794	3399757	-8997	91.78	93.69	100.77
5	4525348	4546841	4596087	4598495	-9178	100.47	101.62	100.05
6	12527420	12793292	13219859	13319083	-2057	102.12	106.32	100.75
7	6076859	6160529	6263411	6316500	-9218	101.38	103.94	100.85
8	6362300	6468213	6710091	6763830	795	101.66	106.31	100.80
9	6763274	6947555	6940004	6964849	-10985	102.72	102.98	100.36
Total	77709216	78948515	80974519	81338090	-98813	101.59	104.67	100.45

Table 7: Net migration and migration effectiveness ratios in 1993 for by settlement type, Germany

Origin band of settlement type	Destination band of settlement type								
	1	2	3	4	5	6	7	8	9
1	0	7	13	19	1	10	11	10	6
2	-13734	0	6	12	6	3	4	4	0
3	-12367	-4301	0	6	12	3	2	3	7
4	-8804	-4131	-963	0	18	9	8	9	13
5	-673	3760	3597	2613	0	9	10	10	6
6	-20155	-4840	1953	2960	-5755	0	1	0	4
7	-8934	-2415	623	1139	-2564	-395	0	0	4
8	-10936	-2803	901	1493	-3131	-259	109	0	4
9	-5890	260	2078	1938	-1600	2457	1204	1409	0
Total	-81493	-735	24857	24041	-22347	27639	13850	16044	-1856

Note: Migration effectiveness = absolute value of net migration divided by gross migration and expressed as a percentage.

9. RELATIONSHIP TO UNEMPLOYMENT

9.1 Geographical patterns of unemployment

Figure 20 shows the geographic pattern of unemployment in 1995. Clearly the gradient of unemployment rises from South to North with a number of areas with very high unemployment. Regions with high rates include the old industrial agglomerations of Saar and Ruhr and on much higher level Eastern Mecklenburg-Vorpommern and Northern Saxony-Anhalt. Bavaria and Baden-Württemberg have by far the lowest unemployment only rarely, mainly in towns, exceeding 12%.

9.2 Relationship between unemployment, population growth and migration

Migrants react to unemployment in a fashion that could be taken from neo-classical economic textbook. All unemployment bands below 12% have been gaining population in all temporal interval and the gain was reversely linked to the unemployment level. What is more the areas with the lowest unemployment maintained positive natural increase. Areas with an unemployment rate over 12% have been losing population; the losses were proportional to the unemployment except in the band with the unemployment exceeding 20%

Migration flows are extremely hierarchical from areas of high to areas of low unemployment, with no single exception. The efficiency of migration grows with the involvement of bands with higher unemployment.

None of patterns analysed so far was so obvious and so clear, but also none of countries analysed so far had such high reward for labour as Germany and such immense regional differentiation of wealth.

Figure 20: Unemployment in Germany by Kreise, 1995
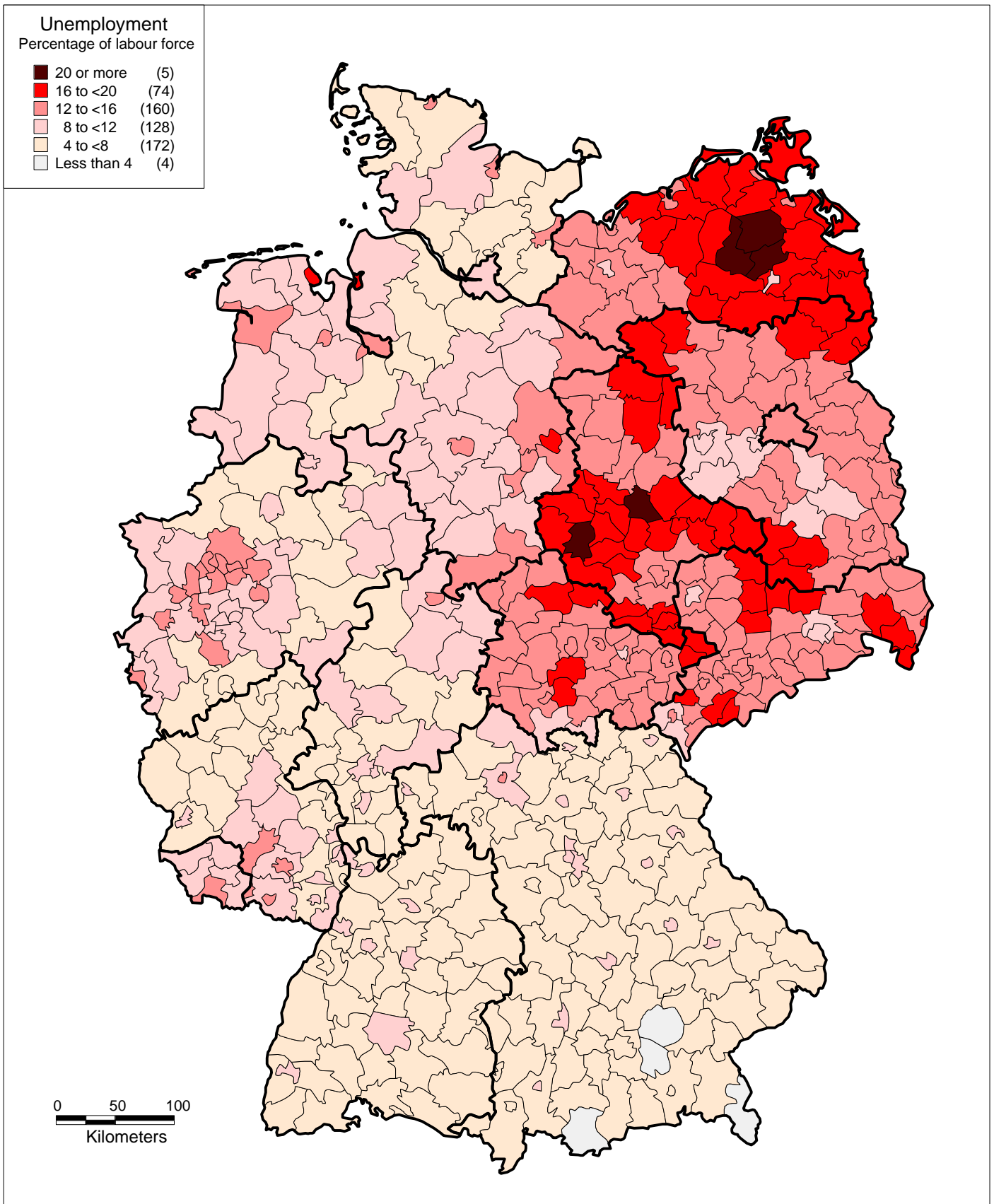

Unemployment
Percentage of labour force

■	20 or more	(5)
■	16 to <20	(74)
■	12 to <16	(160)
■	8 to <12	(128)
■	4 to <8	(172)
□	Less than 4	(4)

0   50   100
Kilometers

Table 8: Population, population change and natural increase by unemployment bands, Germany

Unemployment band (% labour force)	Population in				Natural increase	Population index		
	1984	**1989**	**1992**	**1993**	**1993**	**1984-89 1984=100**	**1984-93 1984=100**	**1992-93 1992=100**
0-4	360221	377087	387758	392075	560	104.68	108.84	101.11
4.01-8	27570541	28246346	29754972	30057586	41469	102.45	109.02	101.02
8.01-12	22475406	23852580	24600566	24723023	-24773	106.13	110.00	100.50
12.01-16	22406214	21766023	21760712	21728667	-85691	97.14	96.98	99.85
16.01-20	4611637	4426015	4206676	4175374	-28487	95.97	90.54	99.26
over 20	285197	280464	263835	261365	-1891	98.34	91.64	99.06
Total	77709216	78948515	80974519	81338090	-98813	101.59	104.67	100.45

Table 9: Net migration and migration effectiveness ratios in 1993 by unemployment band in *Kreise*, Germany

Origin by unemployment band	Destination by unemployment band					
	0-4	4-8	8-12	12-16	16-20	over 20
0-4		*3.*	*7.*	*11.*	*15.*	*20.*
4-8	423.		*3.*	*8.*	*12.*	*17.*
8-12	688.	23797.		*5.*	*9.*	*13.*
12-16	792.	38063.	17342.		*4.*	*8.*
16-20	175.	9192.	5125.	1499.		*4.*
over 20	13.	715.	439.	181.	16.	
Total	2091.	71343.	-1579.	-54518.	-15974.	-1363.

Note: Migration effectiveness = absolute value of net migration divided by gross migration and expressed as a percentage.

10. THE IMPACT OF INTERNATIONAL MIGRATION ON REGIONAL POPULATION DISTRIBUTION OF GERMANY

It is not the aim of the studies of the internal migration and population dynamics to investigate international migration. In the case of Germany population dynamics is so much dependent from the international migration that we thought it was impossible to get a reasonably clear picture without looking into international migration.

A map of annualised net international migration for years 1991-1993 (Figure 21) shows that all but 7 *Kreise* had positive net international migration. Most of them are located in the southern part of former East Germany, two in Schleswig-Holstein. This Land in general has low net international rate with notable exception of two Kreise: Ploen and Steinburg. These two *Kreise* together with Wittstock and Cottbus in East Germany and Göttingen, Unna, Osnabrück and Freudenstadt in West Germany had net international migration rate between 45 and 70 persons per year. This phenomenon is directly linked to the location of resettlement camps for international migrants and *Aussiedlers*, such as, for example, Maassen in Unna, Friedland in Göttingen or Bramsche in Osnabrück. These *Kreise* have also a very high outflow of internal
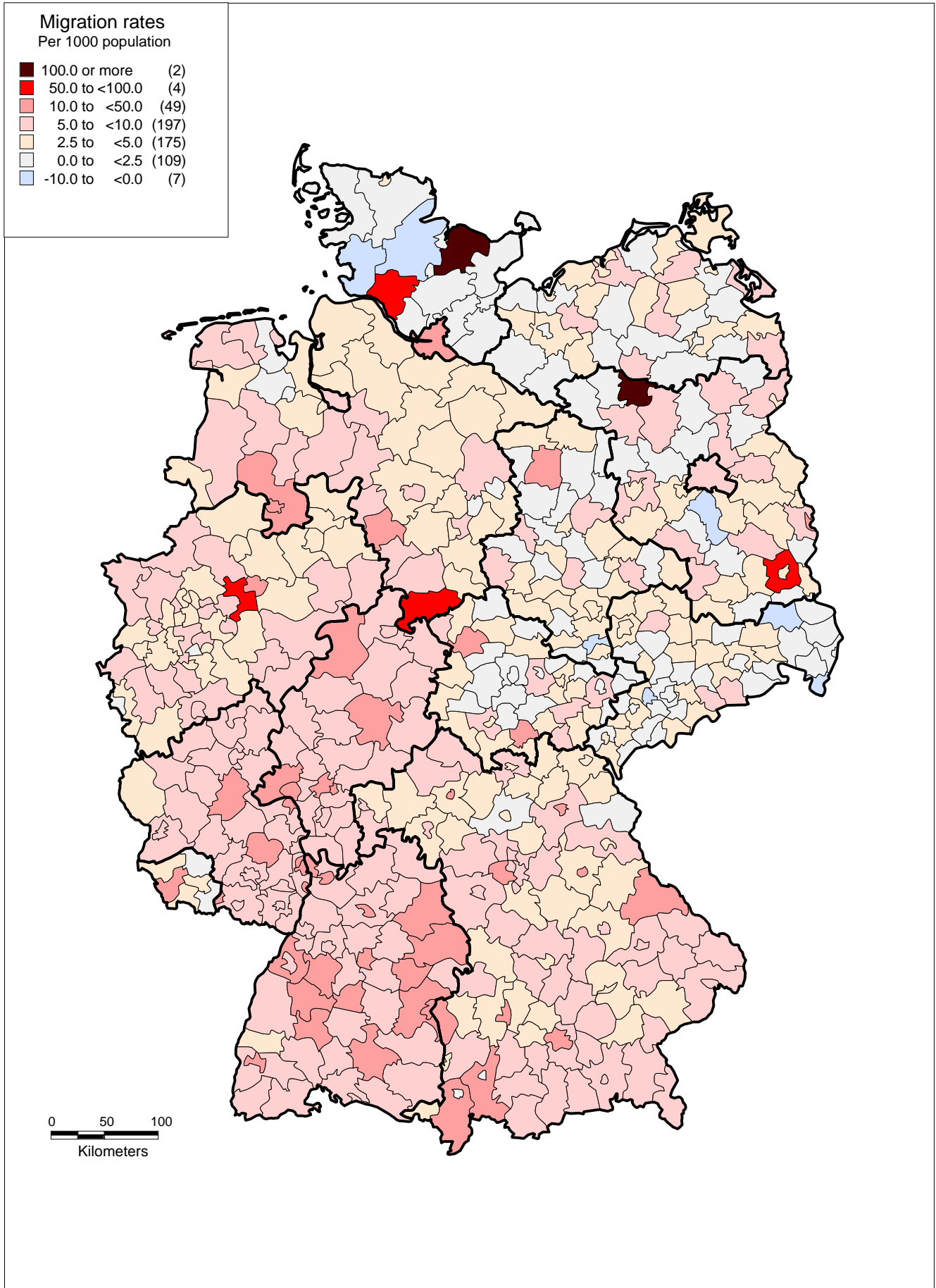
migrants. This is due to the peculiarity of the German administrative system and legislation. *Aussiedler* at the arrival to Germany are classified as international migrants. They are settled in resettlement camps, vetted and eventually granted German citizenship. They are distributed to *Länder* by fixed quota but this time their migration is being treated as internal. Within *Länder* they relocate to their final destinations. The system is perfectly logical, but makes it difficult to analyse the internal migration as indigenous population shows migration pattern different from the pattern migration of international migrants of any kind.

High net international migration gain are typical for some large or medium size cities like Munich, Osnabruck, Fuerth or Ulm. Other large and popular among international migrants cities such as Berlin, Hamburg, Essen, Dortmund and many others show moderate net migration gains, comparable to the level seen virtually all over former West Germany. It is likely that these large cities do not stand out due to large share of inflow is constituted by *Aussiedler* from resettlement camps and possibly illegal or clandestine migration.

On the territory of former German Democratic Republic we can see mostly low positive net migration, not exceeding 5 *pro mille*.

Regional dimension of the allocation of international migrants shows already familiar split into West and East Germany and exceptional situation of Kreise with resettlement camps. International migrants prefers urban agglomerations and then city cores. They are concentration effects in the urban system due to international migration and deconcentration effects due to internal migration. I

Figure 21: Annualised net international migration rate by Kreise, Germany, 1991-1993, all ages

Migration rates
Per 1000 population

100.0 or more	(2)
50.0 to <100.0	(4)
10.0 to <50.0	(49)
5.0 to <10.0	(197)
2.5 to <5.0	(175)
0.0 to <2.5	(109)
-10.0 to <0.0	(7)

0   50   100
Kilometers

11. CONCLUSIONS

To summarise our findings we will get back to seven points we made earlier

- Urban deconcentration in old and depopulation of new *Länder* is dominant. The former is particularly visible for family and older ages. In the new *Länder* concentration was visible in the middle 1980s, but in the 1990s deconcentration is prevailing.

- There are important variations in redistribution by life course stage. The dominant urban deconcentration was most characteristic of middle labour force/family ages and the pre-retirement and retirement ages. People in the young adult ages migrated in different directions, showing a unique shift to some dense neighbourhoods in big cities, those close to higher education institutions.

- Natural decrease is widespread and particularly acute in new*Länder*.

- Unless there is a radical increase in fertility, international migration is the only way of maintaining population numbers and reduce to some extend the effect of population ageing.

- Medium density areas gain people, high (but not the highest) and low density areas lose people. The relationship between net migration on the one hand and population density on the other was strongly negative for low density areas and for the less populated areas. The gainers were areas with medium density of population.

- Unemployment influences migration profoundly. People move between areas of differing unemployment in expected by economic theories ways, leaving areas of high unemployment and going to areas of lower unemployment.

- There is clear geographical divide in demographic trends with some degree of variability. There are two dominant patterns in all demographic change: substantial migration from new to old *Länder* in early 1990s, with the balance tending towards zero at the end of the decade, and deconcentration of population in the largest cities. In terms of population change this deconcentration is masked by massive inflows of foreign migrants.

German population dynamics depends on three factors: natural increase (persistently negative), internal migration and international migration. International migration is the

only factor which maintains the size of population and even allows for a moderate growth. Forecasting of international migration is outside the scope of this study, but it will almost certainly remain quite high, resulting in gains possibly somewhere between 300-500 thousand a year (much less than assumption adopted by Bucher *et al* 1994), enough to offset negative natural growth. There is no direct threat that the population inhabiting German territory, but not necessary German population, will decline in the near future.

The effect of migration goes into two directions: internal migration supports population deconcentration, possibly much further going that the level planners would be happy to accept. International migration has an opposite effect, that of concentration in urban centres, in particular those on top of the central place hierarchy. Migration from new to old *Länder*, formally internal, supports trends visible in the international migration.

Bibliography

BfLR, 1991, Mitteilungen und informationen der BfLR, 1, Februar, Bonn

Bucher H, Gatzweiler H-P (1996) Interregional migration patterns and processes in Germany. (in:) P.H. Rees, J.S.C. Stillwell, A. Convey, M. Kupiszewski (eds.) *Population migration in the European Union.* John Wiley and Sons, London, 123-143.

Bucher H, M. Kocks, M Siedhoff (1994) Die künftige Bevölkerungsentwicklung in den Regionen Deutschlands bis 2010. Annahmen und Ergebnisse einer BfLR-Bevölkerungsprognose. in: *Informationen zur Raumentwicklung 12.1994. Raumordnungsprognose 2010.*

Höhn C (1991) Germany; in: J-L Rallu, A Blum (eds.) *European population 1. Country analysis.* Congresses & Colloquia 8, INED, 83-111.

Jones A (1994) *The new Germany. A human geography*, Wiley & Sons, Chichester.

Kosinski L (1962) *Geographia Polonica*, 2

Kupiszewski M, Durham H and Rees P, (1996) *Internal Migration and Regional Population Dynamics in Europe: Polish Case Study*, Report prepared for the Council of Europe and for the European Commission.

Kupiszewski M, Kupiszewska D (1997) Projection of Central and East European Populations - the model, the data and preliminary results. Paper presented to the 31 Annual Conference of the German Population Studies Association, Berlin 24-25 April.

Mellor R (1978) *The two Germanies. A modern Geography*, Harper and Row, London

Mohs G (1980) *Migration and settlement: 4. German Democratic Republic.* Research Report RR-80-6. IIASA, Laxenburg.

Rees P, Durham H and   Kupiszewski M (1996) *Internal Migration and Regional Population Dynamics in Europe: United Kingdom Case Study*, Report prepared for the Council of Europe and for the European Commission

Statistisches Jahrbuch der DDR, 1987

Weber E (1976) *Bevölkerung. in: Ökonomische Geographie der Deutschen Demokratischen Republik.* Gotha, Leipzig.