Indicators and standards of demographic change

Study by the Institute for Applied Demographics (IFAD) under the DART project

Summary of the IFAD final report
(Short version)

Berlin, September 2012

contents

Demographic change in Europe (incl. political discussion)

For about 10 years, it is clear that Europe's demographic change as a "megatrend" of the 21st century is not a "normal" structural change, but includes all spheres of life of the affected societies and this will change in an as yet to be experienced way.

The decline in birth rates first began in European countries a hundred years ago, which then led through several stages, starting in the 1970's, when levels fell below the required reproduction level. This process is accompanied and increasingly reinforced by the continuing increase in life expectancy in almost all European countries. This increase in life expectancy continues unabated. In the 20th century alone, this amounted in Germany to about 30 years, and present trends in the improvement of the life expectancy for the elderly point to the conclusion of this development being 'the society of the centenarian'.

The complex process of demographic change covers four areas:

the quantitative change of the total population, i.e. altogether territorially differentiated contraction of the population particularly in the area with embedded urban growth islands;

the change of the age structure of the population and shift of the proportions between the age groups, i.e. above all ageing of the population, increase of the average age, sinking of the youth quotient and growth of the elderly quotient;

the change of the social structure, above all the family, and household structures, i.e. also the growing 'separation' and importance of the economic and political meaning of the older population age groups;

the change of the territorial distribution of the population by migration movements, i.e. in particular drift from rural areas and immigration into growth centres;

The countries that have for a longer time been engaged in this process of a contracting and ageing society have permanently superseded countries with expanding populations in Europe. Such changes between expansion and contraction in the population trend have always taken place, but not under the conditions of a modern industrial society. Also in a growing society, with large sections of the younger population, they are faced with major policy challenges. The difference is, however, that these issues in the past have been dealt

with, *while for the current situation experiences are only rudimentarily available.* An important distinction about the phases of growth is still to see that adjustments in the population shrinkage and ageing phases require whatever adjustments and reductions in public services, and this is steeped in conflict, rather than establishing new services.

This demographic challenge is thus unique in European history. There are therefore no tried and tested remedies, so European societies should respond appropriately to this development. Therefore the European population faces new and very complex challenges. *The irreversible ageing of the population and the increasing territorial disparities are at the core of this process of change, and will lead to major changes in society, politics and business.*

Therefore, with assurance, the number of inhabitants in Europe will be reduced by the year 2050 to approximately 542 million. The slight rise in fertility numbers, which can be found at present in the scientific discussion, in no way leads to a stabilisation or a growth in the population of Europe from within itself. This 'rise' is too small because today's average value of 1.5 children per woman would have to rise on a long-term basis to over 2, in order to reach the required reproduction level in the long term. In addition, it comes that due to the inertia of the demographic processes even such a very improbable increase would change almost nothing in the developments of the next 20-30 years (i.e. that the birth rates continue to remain low and the ageing of the population continues). Theoretically, a stabilisation would at least be possible by the numbers of immigrants coming in, as has been experienced in recent years in Europe. However, it is increasingly questionable from which source potential immigrants would come from as the traditional areas, especially in Eastern Europe, are now also affected by an extreme shrinking process. The demographically induced change of European societies is in full swing and will continue with increasing speed and lead to a similarly far-reaching change in social systems and organizational structures of life.As it's essentially hard to change the demographic core processes of this change (birth rate) or the desired development (increase in life expectancy), a differentiated approach in dealing with the ageing and shrinking process and their impact in the form of dynamic adjustment is necessary and also promising.

The current and future demographic developments are local, and in particular regional. The main effects of the demographic change: 1. contraction and ageing on the one side and

increasing concentration and internationalization (connected with an increasing problem of integration, particularly in western, central and southern Europe) on the other side. 2. extremely differentiated territories (they are not proportionally or linearly run in the countries, regions, cities and municipalities or run along political or administrative borders). We are seeing a juxtaposition of the growth and contraction processes.

As a rough overview, a demographically conditioned division in two parts of Europe exists regarding this development. Apart from prosperous centres of dense development, which exercise an increasing attraction, distant parts of Europe experience themselves, particularly in the rural peripheries, the change as a contraction with increasingly emptying areas due to depopulation and a rapid increase in the ratio of the older population.

From this, the most varied problem configurations result. The decrease in population leads to the undermining of the sustainability of the general infrastructure. The maintenance of functional regional labour and supply markets is reflected in this. The strong increase in the proportion of elderly people, in particular in the surrounding countryside of the cities and in the rural regions, makes high demands on the local infrastructures. The migration processes lead to demographic and social disproportions in the age and gender structure. The proportion of men in an ageing population increases disproportionally. From this skewed social structure follows the increase of deviant behaviour and lifestyles such as alcohol dependency, extremist attitudes and violence. These problem areas work for their part as a catalyst in accelerating the demographic ageing process. That is why flexible adaptation strategies are necessary, both on a national level, and also in view of the particularly affected regions.

A prerequisite for this is first the supply of regionally differentiated information and data, for which regional benchmarking can be used (see section 6.5). At this time the data and forecasts refer to the demographic change predominantly on higher levels, large regions or the countries as a whole. Informed political decisions, especially locally made ones, require the inspection and monitoring of small-scale municipal units (such as districts, cities, city area regions, and so on), because here demographic change with its effects and consequences for a citizen-based municipal and infrastructure policy show most directly.

These above-mentioned changes don't concern all regions at the same time and to the same extent. In particular (selective) migration processes have created areas that today are very well advanced in demographic change and play, so to speak, a "pioneering role" (laboratory for strategies) in the confrontation of these changes.

There can no longer be uniform standards in view of the descriptive different developments. Especially in shrinking rural areas, minimum standards need to be defined, and also the development of territorially graded areas for social services and benefits. The complexity of demographic changes therefore demand comprehensive and intelligent adaptation strategies, which take into account all fields of activity in the context of a cross section policy.

Comparison of demographic change in the sub-regions (the period of time depending on the evidence, 1990/1991/1993 to 2008/09/10)

All DART partners chose a region for the DART project from their countries or regions of the country where, according to their demographic processes of ageing of the population and the population shrinkage, are particularly concise. On the basis of 13 of the most important indicators of demographic change, these processes in the DART sub-regions were represented and allowed for comparison. In detail, these are: *population density, population change to clusters, population forecast, age structure, elderly quotient, youth quotient, average age of a mother giving birth to her first child, birth/fertility, population change by gender, life expectancy, household size, marital status.* The most significant demographic changes in the sub-regions can be summarised as follows on the basis of these indicators:

The surveyed DART sub-regions differ considerably in their population. The Dutch region of Parkstad is extremely densely populated in comparison with the two Finnish regions who have a very low population density. All other regions have a comparable population. It is clearly visible *that almost everywhere there is a decline in the population* in the last few years. Only the Czech region of Kutna-Hora has a minimal increase.

The population change in the sub-regions can be divided into five clusters. The sub-regions saw an increase in the population in Kutna-Hora, Gorenjska and Roscommon in the period under review. The remaining sub-regions have to counter all the problems of a decline in population. The two German sub-regions, with a population decline of about 20 per cent, are particularly affected.

Land/Region/Subregion	Population change in %	
Germany/Brandenburg/Uckermark	-19,9	Cluster I (very intense decrease)
Germany/Sachsen/Görlitz	-19,2	
Finland/Kainuu	-14,2	
Poland/Lower Silesian/Klodzki	-10,4	
Romania/Centru/Alba	-9,4	Cluster II (intense decrease)
Finland/North-Karelia	-6,8	
Austria/ Lower Austria /Waldviertel	-4,7	Cluster III (Decrease)
Spain/Galicia/Ourense	-2,5	
Netherlands/Limburg/Parkstad	-1,5	
Italy/Verona/Rovigo	-0,3	Cluster IV (Stagnation)
Czech Rep/ Central Bohemian/ Kutna-Hora	0,2	Cluster V (Growth)
Slovenia/Kranj/Gorenjska	4,3	

Irland/WRA/Roscommon	13,2	

With regard to population growth by 2020/2030, it is evident that in the studied sub-regions, which provided data, *the population will fall heavily*. The decline of the population shows particularly clearly in the two Eastern German regions. They are most likely to face the problems of demographic change and can therefore assume a certain role. Because it turns out that, in the future, all other examined areas *expect increasingly lower population* and the resulting associated problems of an ageing society. Only the region of Roscommon can expect a further increase in its population.

A clear reduction in the younger generation (typically 0-15 years) is visible in all sub-regions. The consequences of declining birth rate in Uckermark, Klodzki, the district of Görlitz, the Romanian region of Alba are most visible. Parallel to this, *an increase in the population of over 65 year olds* is clear in the course of time. This change in population structure is particularly visible, in turn, in the two German sub-regions. Only in the region of Roscommon are the number of over 65 year olds in slight decline. In connection with this, *a decline in the youth quotient* in all surveyed regions is identified, as a result of the demographic change of an increasing elderly quotient.

An increase in the average age of a mother giving birth to her first child, and thus a time shift of the first-born to a higher age, is happening in almost all sub-regions. Only in the North-Karelia sub-region does the average age of a mother giving birth to her first child decline slightly. All together, the average age of a mother giving birth to her first child in all the sub-regions moved towards the age of 30.

Even if the data on life expectancy in the sub-regions doesn't allow a representation over time (data available), it does show very clearly that in all sub-regions that *the average life expectancy for women is significantly above that of men*. This longer life expectancy for females can be regarded therefore as another fundamental demographic trend in different European sub-regions.

It can be seen, when looking at the sub-regions, that *increasingly one-person households* are being established, that the household structure changes, and that the average household size is decreasing.

The "classic" ideal of families is subject to structural changes. The large households (4 people and more) are particularly widespread still in the Eastern European sub-regions (Romania, Slovenia, Czech Republic). But significant changes are also visible. With declining populations, *a stable trend (over the period of 15 years) towards the 1-person or "single" household is shown* in most of the sub-regions.

It is clear that in all DART sub-regions where a view was possible using the data provided, the migration of foreign people and the increase in the proportion of the foreign population within the population of the surveyed areas, was characterised by democratic change. This seems important also in respect of the composition of the population and the consequences for regional labour markets and national social security systems, as this trend is stable and takes place in all sub-regions in the light of the population shrinkage and ageing. Migration is a fundamental demographic trend which appears clearly in all surveyed with only a few exceptions (Kutna-Hora, Ourense, Roscommon, Rovigo). This refers to some *significant population loss through migration* and is characterized as a spatial component in addition to the natural loss of population and basic demographic changes in the various European sub-regions.

Summary: European regions are in a radical process of demographic change. This can be proved by small scale (below the Eurostat NUTS III level) population and social statistics with the tested indicators (see section 5).

It turns out that *this process of change is irreversible and long-term. Regionally differentiated changes can be demonstrated, reproduced, and continue to be predicted, if the data bases exist.* On the basis of the evaluated data from the 13 DART sub-regions, the demographic conversion and change processes show especially in the following:

Continuous population decline (contraction apart from Cluster V, in perspective negative demographic projections in all sub-regions);

Continuous ageing of the population (shrinkage of the youth, particularly under 20 year olds, growth in the elderly, in particular those requiring constant nursing care - all clusters);

Sinking of the population density (except Cluster V);

Increase in the share of the foreign population;

Increase in the age of a mother giving birth to her first child;

Increase in life expectancy;

Negative balance in the natural population growth (births/deaths);
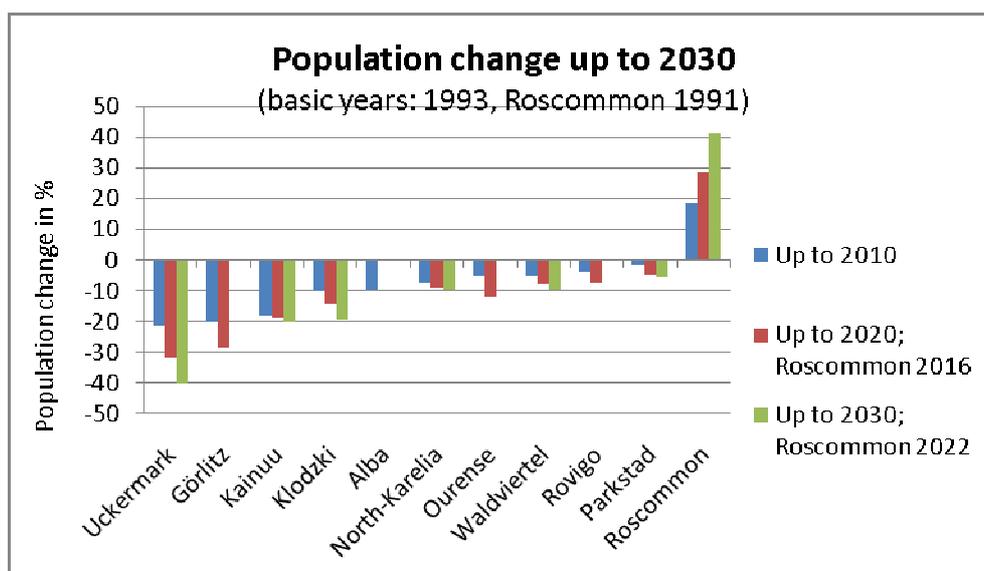
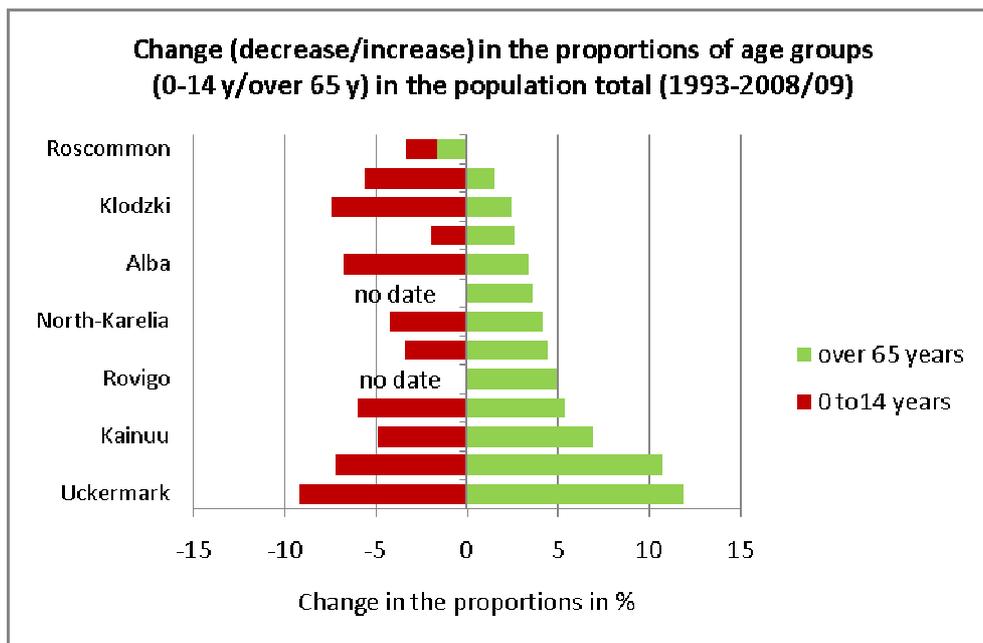*Negative balance in spatial population movement (immigration/migration);*

Change in the composition of households (increase in 1-person households);

*Decrease in the number of pupils and the number of trainees;*

Structural changes in the labour force - increase in older workers and employment of women, strengthening of long-term unemployment;

Structural changes between the sectors of the economy – decrease in employees in agriculture and industry, growth in the service sector.

Change (decrease/increase) in the proportions of age groups (0-14 y/over 65 y) in the population total (1993-2008/09)

Region	Population		Change (decrease/increase) in the population total and the proportions of age groups (0-14 y/over 65 y) in the population (1993-2008/09)		
	Total 1993	Total 2008/09	Total	0 to14	Over 65
Uckermark	163.719	132.837	-19,9	-9,22	11,86
Görlitz	347.707	281.076	-19,2	-7,24	10,73
Kainuu	96.298	83.160	-14,2	-4,90	6,92
Klodzki	182.667	164.434	-10,4	-7,46	2,45
Alba	412.038	374.535	-9,4	-6,81	3,38
North-Karelia	178.076	166.129	-6,8	-4,25	4,18
Waldviertel	148.633	142.042	-4,7	-3,43	4,47
Ourense	344.170	336.099	-2,5	-1,95	2,63
Parkstad	244.387	241.792	-1,5	no date	3,59
Rovigo	248.004	246.255	-0,3	no date	4,98
Kutna-Hora	74.774	74.850	0,2	-5,59	1,49
Gorenjska	194.472	202.485	4,3	-6,01	5,38
Roscommon	51.975	58.768	13,2	-3,30	-1,65
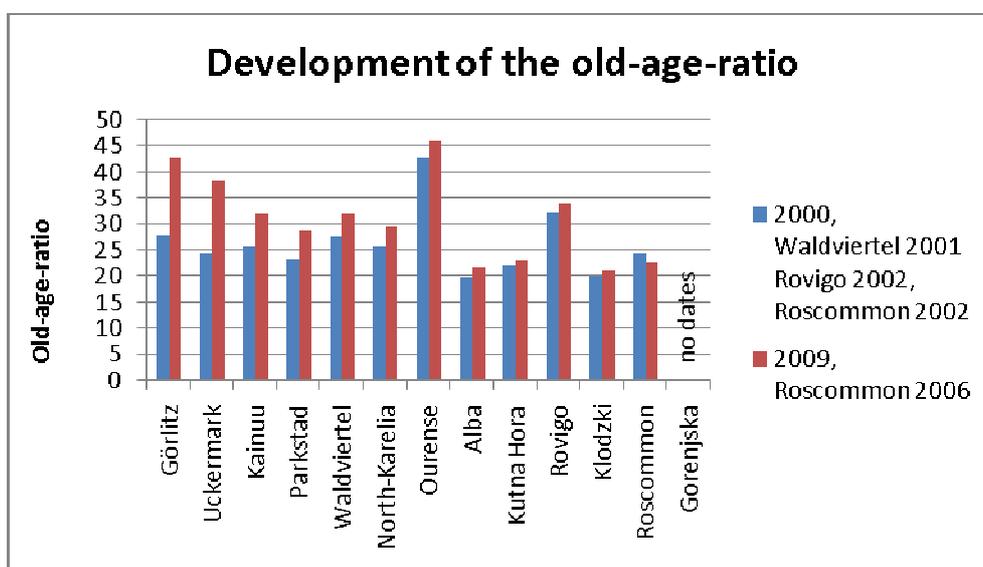
Development of the youth-ratio
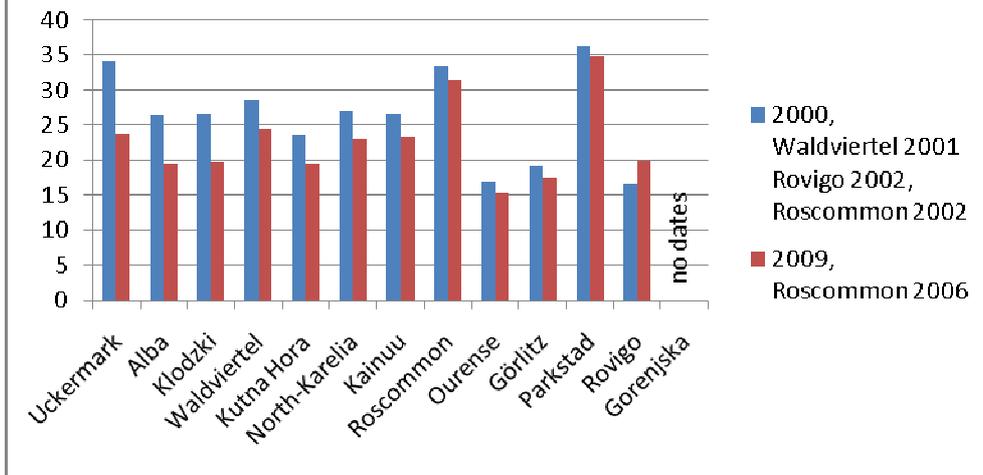
Indicators and standards (results)

Indicators of demographic change

In the DART project *an indicator set and a regional observation monitor* (demographic "early warning system" DART monitor) were developed and these were tested by the equipment with suitable demographic and social data from the various sub-region (in as much as this data at regional level was available). So it was and is possible for it to illustrate basic demographic changes in European regions in the time course, to measure, to extrapolate and to compare regions with each other (see Section "Demographic change in Europe (incl. political discussion)"). *The processed data was primary data from the sub-regions* which existed and *could be evaluated for the first time in a European demography project*. In this sense underlying demographic and social counter set to demographic change, in its form and compactness of composition as well as the *data-driven regional viewing monitor*, represents a novel approach to the analysis of demographic change in Europe in the portraits of the sub-regions (see full version of DART final report) and demographic comparison of the sub-regions.

Only with the small-scale, comprehensive complex and specific time intervals (panel surveys) application and evaluation following highly condensed indicators (see the long version of the DART end report to detail), can both the demographic ageing of population decline (and selected indicators of social participation and quality of life) guarantee a largely accurate description of demographic change in a certain European analysis and lead to practical and effective local politics measures in dealing with the consequences of change or forward-looking political planning.

Indicators for the measurement of demographic change

Total population by gender gives a basic overview of quantitative population growth in the sub-regions of the DART project and provides information for the shift in the gender ratio in a certain period of time, particularly relevant in the elderly sector.

Population / population density per km refers to the change of its values to a shrinkage trend or tendency towards further growth of the population of the respective region.

The foreigners / proportion of foreign citizens in the population returns delivers statements as to the change in the national composition of the population as well as to the change in the absolute population of a region (significant for the integration issue of foreign citizens and its political consequences).

Gender age structure of the population: the observation of the age and gender structure in the sub-regions showed an increase in the share of women in older age groups and others in the DART project pointed to an ageing specific to gender, a higher proportion of men in younger age groups, "thinning out" or the reduction or increasing the proportion of young reproductive age groups in the population over time, the increase or decrease in the proportion of old, elderly and unreproductive age groups in the population, the fall in pupil numbers and the number of trainees, the change in the proportion of older workers in the labor force, the change in the overall dependency ratio (youth quotient and the elderly quotient, whose shifting refers to ageing)

Migration refers to mobility or stability in the migration behaviour, which means a population growth or shrinkage trend especially in the net balance of spatial population movement.

Indicators to predict the demographic change (not to separate indicators for the measurement of demographic change)

Population projections show, in the DART project in the various sub-regions, expected shrinkage trends or population decline or/and growth trends or population growth. These projections are among the other important indicators listed for local government plans and targets in certain periods, for infrastructural, economic and social projects and redesigns, etc.)

Fertility: An increase or reduction in the fertility can explain quantitative population changes (shrinkage tendencies or growth trends), where always such indicators as age of the mother having her first child (= increase in age = usually the shift in the age of a mother having her first child= lower birth rate in the reproductive age= reduction of the young generation= shrinking population) contribute, but also mortality and migration are considered.

Mortality: an influence on the increase in the average age of a population or the average life expectancy (ageing of the population in demographic change) has reduced mortality rate and mortality.

Net balance of natural population movement: constant mortality case surpluses over longer periods of time (usually in combination with an increase in the age of mothers having their first child and a negative balance of spatial population movements) to the shrinkage of each population analyzed.

Life expectancy: Rising life expectancy is in addition to traditions in the way of life (e.g. nutrition, geographical location and others) mostly an expression of the development of high-quality living conditions, in particular the social and health care, but also of medical progress. The results in the DART project in the sub-regions also detected displacement of the age structure of population in the period to increase the proportion of old and elderly in the total population, and clearly shows in addition to the increase in life expectancy, the ageing of the population in various European countries as a basic process of demographic transformation.

Indicators for the classification of the regions in demographic change

Quantitative data – Total population: decrease or increase in the absolute population at specific time intervals (annually, etc.).

Cluster: Within the DART analysis groups of similar sub-regions with regard to the size of the decline or growth of the population (e.g., very strong decline, strong decline, decline, stagnation, growth etc.) in a particular period of time. The clustering, i.e. in the DART project the group division after quantitatively defined types/sizes of contraction / or and others, serves the order of education in the region, the comparison of individual regions from different clusters. Other cluster can be identified and so forth depending on the need, current interest, political relevance if there is assessable data available.

Indicators to measure social participation and quality of life in an ageing region

Structure of households / size of households: Changes showed tendencies of "isolation", "separation", and social isolation by the increasing dominance of single person households and the decline of large multiple-person households in the DART project. A growing

proportion of widowed women (generally in all DART sub-regions there was a higher life expectancy in women) is an expression of gender ageing and entails appropriate consequences with regard to the quality of life of these people of that age (loneliness, social isolation, nursing and care expenditure, poverty rate and so forth).

Marital status of persons in private households referred also to "separation and isolation trends" or changes in the forms of cohabitation by a growing proportion of singles ("households") in the project.

Education/educational structure by age group: this social indicator may among other things indicate needs and possibilities of the age-specific training / training / qualification training. It shows also the current use including the educational potential of older workers and refers to its development in an ageing society.

Student numbers or number of trainees: This indicator refers to changes in the fertility and declining birth rate, also on the school and educational consequences in the municipalities / regions.

Proportion of employees/workforce per sector of the economy: this indicator provides information on the employment structure and changes in the respective DART sub-region or on new areas of employment for an ageing working population by economic structural changes, including future opportunities for the employment of older people in the sub-regions.

Participation (economically active population) documents the development of the participation of the population in the labour market and on the regional economy as the essential basis of social participation and quality of life.

Employment rate of older workers: this important indicator of social participation in ageing societies presents the realities, but also the chances of older people in employment or in the regional labour markets and thus the use of relevant experience and education potential of elderly workers capable of gainful employment.

Shows development of unemployment (especially related to the under 25 year olds and over 50 year olds) shows the exclusion from the labour market of certain age groups and thus the need for social benefits or supports. In this context, the indicator of long-term

unemployment (unemployment as time-solidified) illustrates the long-term exclusion of the regional labour market and thus sustainable wear of human capital in the age groups that have a special relevance for demographic change.

Number of deaths by gender or causes of death: the development of gender-specific deaths references including advances in public health and age-related health care and care. The analysis of causes of death among other things indicates to problematic living conditions and deviant practices, such as alcoholism, in the shrinkage regions.

Human resources development in the health and care sector: this health indicator shows including the acceptance of a health policy in a demographically changing society or region and the human consequences in the health and care sector of a higher life expectancy in ageing regions.

The above mentioned indicators in the DART project were generally good for non-specialists to use and most importantly, comparable and updateable data sets for the small-scale description of basic demographic processes of change in different European regions could be established. They can be maintained independently by European users (eg in the form of the DART observation monitor or in the updating of the provided data tables for each indicator).

Standards of public services of general interest

Europe's population will shrink further in the coming decades and at the same time get older, as shown by the indicators of demographic change and the corresponding data analysis in the DART sub-regions. This has multiple social and economic effects on the respective society and region. Accordingly spatial disparities (shrinkage and growth regions) must be demarcated as such, causes and consequences at all planning levels evaluated, *and standards (guidelines, rules, standards, laws) of social and municipal services of general interest in the sense of ensuring and safeguarding basic living conditions for the population of each must be checked and, where appropriate, new sets introduced and enforced.*

The following problem is on the agenda: *How can the public's general interest and the preservation of the quality of life be guaranteed under the conditions of the population shrinkage and population ageing with restricted or decreasing funding by the local authority districts for a structurally changing population in each respective European sub-region and be*

adapted to the demographic change? To expand the knowledge of this problem and to make further bases for appropriate political planning and decision-making contained within the DART project, *an inventory of the standards of public services of general interest in the various sub-regions was performed as an expert forecast to the needs and the adjustment of these standards to demographic change,* with which the above mentioned indicators for each region based on data more or less accurately mapped. *The survey referred to* above all: shrinking and ageing population, child care, schools and school facilities, medical care, support and care for older people, older / younger workforce / education in the region. *Expert opinions* in the sub-regions were raised for such questions as: what areas of public services of general interest are of particular importance in terms of the demographic change? In what areas should existing standards of public general interest because of the consequences and effects of demographic change (ageing and shrinking of the population) be revised? What standards of public services of general interest are necessary and required from the experts perspective in dealing with the effects of demographic change?

Political recommendations

Other topics, e.g. data availability, indicators, standards

Demographic change is not a "normal" structural change, but includes all aspects of life of the affected societies or sub-regions and is thus also comprehensive policy-relevant. This was clearly shown in the analysis of selected indicators and data from the sub-regions in the DART project.

For this resulting comprehensive policy of the demographic changes to have relevance, it is imperative that the policy response to demographic changes (state and local politics) is a regionally differentiated approach to the complex processes of ageing and shrinkage, showing that their impact on demographic change is absolutely necessary. The basis of information available presently in *the EU statistics and databases are barely sufficient to do justice to the regional level specific processes and requirements of the demographic change or to illustrate this*. Therefore the DART project had to fall back on exclusively on data from the individual sub-regions. This however showed that the demographic, labour market and social data on the ground, in the sub-regions, should be prepared, so that they allow a realistic assessment of the current and perspective demographic situation in the respective region. To strive for this, it is generally good to make comparable a single regional monitor, reporting the essential processes of the population on the basis of a single demographic indicator set (in the DART project proposals have been submitted), which opens up the possibility of territories, areas (such as parts of the country, counties, local units), and regions of the country or several countries, to develop cross-border cooperation, to share experiences in dealing with the consequences of demographic change, etc. Such regional monitoring is one of the most essential basic requirements (basic findings from the empirical part of the DART project), both at the EU level, at the level of individual countries, as also with the view on the affected sub-region, flexible adaptation to demographic developments in pilot projects to test and to generalize. It must be first differentiated that the statistical information and data which can be used for a regional benchmarking and monitoring, be tested, provided, and then continuously updated.

The regions are to recommend the following in this connection: *development and maintenance of small-scale demographic databases, maintain and update a data monitor which makes visible demographic development processes at specific time intervals, small-scale, disaggregated population projections, because informed political and communal decisions (for example in the labour market, education and school, social and infrastructure, health policy) on sectioned regional, municipal or local level require this.*

What can the establishment of a regional benchmarking policy (which can withstand the criterion of comparability between different regions of the country and sub-regions of different countries with similar demographic problems / processes) and *the experience from the DART project particularly point to (proposals)?*

*Application of uniform definitions for indicators (*demography, labour market, education, health) in the EU and at the European level (based on EU statistics, Eurostat)

Provide similar updateable databases to the corresponding indicators and for similar time intervals

Use and integration of demographic and regional sociological expertise as well as exchange of experience and cooperation with the *EU regional statistics or the national statistics of the EU countries*

Glossary Demography

Outward migration → migration

Net migration loss → migration balance

Total fertility rate (TFR) (syn. general→ fertility rate)

General fertility rate → fertility rate

General fertility rate → fertility rate

General birth rate (syn. general → fertility rate)

General birth rate (syn. general → fertility rate)

Total mortality rate (syn. general → mortality)

Total mortality rate (syn. general → mortality)

Old-age dependency ratio - comparable percentage of people who reached retirement age (women from 60, men from 65) to 1000 persons of working age at a certain date. Persons of working age at a certain date are all women from 16 to less than 60 and all men from 16 to less than 65.

Age specific fertility rate (syn. age specific → fertility rate)

Age specific fertility rate → fertility rate

Age specific fertility rate (syn. age specific → fertility rate)

Age specific birth rate (syn. age specific → fertility rate)

Age specific birth rate (syn. age specific → fertility rate)

Age specific mortality → mortality

Age specific mortality (syn. age specific → mortality)

Fertility rate → fertility rate

Fertility rate → fertility rate

Fertility rate (syn. Fertility rate, birth rate, birth rate, fertility rate) - Indicator to measure fertility. Basis of calculation is the number of live-births during a certain period (usually calendar year). Distinctions to be made are:

1. *General fertility rate* (syn. general fertility rate, general birth rate, general birth rate, total fertility rate) is the number of live-births during a certain period (usually calendar year) related to the average population of women of → childbearing age multiplied with 1000. It reveals the number of live-births per 1000 women of childbearing age of median population.

2.   *Age specific fertility rate* (syn. age specific fertility rate, general birth rate, general birth rate, total fertility rate) is given as the relation of live-births, born by women in between x

and x+1 during a certain period (usually calendar year) to the average stock of women of this age during the same period. The result is usually multiplied with 1000.

Childbearing age → age of women while they are potentially able to give birth. Governmental Statistics of Federal Republic of Germany usually takes the age from 15 up to 44.

Deficit of births → birth balance

Birthrate → fertility rate

Birth balance → Difference between the number of → live-births to the number of → deceased during a certain period. A positive birth balance is called birth surplus, a negative one deficit of births or decease surplus.

Birthrate → fertility rate

Sex specific mortality rate, sex specific death rate → mortality rate

Deceased (syn. deceases) - Natural persons who died after birth. Therefore stillbirths are not counted as deceased.

Youth quotient – comparable percentage of children and juveniles under 16 to 1000 persons of working age at a certain date. Persons of working age at a certain date are all women from 16 to less than 60 and all men from 16 to less than 65.

Live-births – Governmental Statistics of Federal Republic of Germany records children who had a heartbeat, a pulsing umbilical cord or started to breathe naturally after being parted from their mother´s body (international standard phrase).

Moribundity → mortality

Spatial movement of people → migration

Deceases → deceased

Decease surplus → birth balance

Death rate → mortality rate

Mortality rate (syn. death rate, probability of dying) rate to measure mortality of people. - Basis is the number of deceased (syn. deceases) during a specific period (usually calendar year). Distinctions to be made are:

(1)   *Total mortality rate* (syn. general mortality, general probability of dying) is given as the relation of deceases within this period to the average stock of population. The result is usually multiplied with 1000.

(2)   *Sex specific mortality rate* (syn. sex specific mortality rate, sex specific probability of dying) Mortality of men and women is more or less different. To record this differences, sex specific mortalities are calculated by relating the number of women (or men) who deceased during a specific period of time to the average population of women (or men) within the same period. The result is usually multiplied with 1000.

(3)   Age specific mortality rate (syn. age specific death rate) is given as the proportion of a population of specific age dying within a specific period of time to the population of the same age living during the same period. The result is usually

multiplied with 1000.

Probability of dying → mortality rate

moribundity (syn. mortality)

➢ Being mortal, mortality of natural persons.

➢ Demographic process of diminution of a population by cases of death.

Migration (syn. spatial movement of people) - demographic process of regional mobility, the associated demographic events are called cases of migration or also migration.

Migration loss → migration balance

Migration balance - balance of relocations. A positive balance is called migration surplus, a negative balance is called migration loss or net migration loss.