Emerging Population Issues in Eastern Europe and Central Asia

Research Gaps on Demographic Trends, Human Capital and Climate Change

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Acronyms and Abbreviations

AR4   *4th Assessment Report of the Intergovernmental Panel on Climate Change*

CAS   *Intergovernmental Panel on Climate Change geographic region comprised of Central Asia (rectangle framed by 30N, 40E to 50N, 75E latitude/longitude)*

CICRED   *Committee for International Cooperation in National Research in Demography*

EECA   *Eastern Europe and Central Asia*

EJ   *Exajoules (EJ=10^{18}J)*

ERA-AGE   *European Research Area in Ageing*

EU   *European Union*

GDP   *Gross Domestic Product*

GtC   *Gigatons Carbon (GtC=10^{15}g Carbon)*

ICPD   *International Conference on Population and Development*

IPCC   *Intergovernmental Panel on Climate Change*

IIASA   *International Institute for Applied Systems Analysis*

IUSSP   *International Union for the Scientific Study of Population*

NEU   *Intergovernmental Panel on Climate Change geographic region comprised of Northern Europe (rectangle framed by 48N, 10W to 75N, 40E latitude/longitude)*

PPP   *Purchasing Power Parity*

PRB   *Population Reference Bureau*

REF   *Second Report on Emissions Scenarios' geographic region comprised of Central and Eastern Europe and the independent states of the former Soviet Union*

SEM   *Intergovernmental Panel on Climate Change geographic region comprised of Southern Europe and Mediterranean (rectangle framed by 30N, 10W to 48N, 40E latitude/longitude)*

SRES   *Second Report on Emissions Scenarios*

TFR   *Total Fertility Rate*

UN   *United Nations*

UNFPA   *United Nations Population Fund*

VID   *Vienna Institute of Demography*

1. Introduction

The countries of Eastern Europe are experiencing a population trend that is unprecedented in human history. To date, populations have never before encountered sustained declines that were not the direct consequence of mortality increases caused by, for example, famines, epidemics and wars, all of which were sometimes also associated with out-migration. The current combination of extremely low birth rates, migration losses and moderate mortality is leading to a combination of rapid population ageing together with population decline in many countries of the region. It is such a new development the international community cannot provide these countries with policy advice or reference to best practices elsewhere, as is the case with many other population-related challenges. The international scientific and policy communities' lack of readily available support and resources is in stark contrast to the high level of concern shared by policy makers and the public at large in the countries in the region. There is a need for urgent attention to these population-related challenges that goes beyond the region itself because:

1. These trends in Eastern Europe are unlikely to be idiosyncratic and short-lived, rather, they point to a development that will likely spread to an increasing number of countries around the world, particularly in East Asia;
2. These sharp changes have a politically and economically destabilizing potential that may go far beyond the region of Eastern Europe and Central Asia (EECA) itself.

It is also important to consider the population trends not in isolation, but in the context of other major social, economic and environmental changes that are expected for the region over the coming decades. This report will focus upon the interactions between the expected climate change for the region and future population trends, including migration, all of which are emerging issues of still unknown dimensions. While each of these issues alone may have far-reaching consequences for the future of the countries in the region, the consequences of climate change may further trigger strong migration flows both within and outside the region.

This report begins with a comprehensive summary of information and current gaps in knowledge regarding likely future trends in population growth and ageing in the region. It will then explore how population-related policies can address these trends and lead to a broader perspective focussed on human capital (population x education x health) rather than only population numbers. Assessments of (a) likely future patterns of climate change and (b) migration in the region, and their possible consequences, will follow. The report concludes with an analysis of the possible interactions of these trends and relevant policy considerations.

2. Demographic Trends

Population projections are often used incorrectly as predictions, i.e. with a high confidence that the actual trend will exactly follow the one projected trajectory that is being presented. But for the countries in Eastern Europe and Central Asia, which in several respects are entering previously uncharted demographic territory, the future trends in fertility, mortality and migration are highly uncertain. We simply do not know, for example, whether fertility rates will recover soon, stay constant or continue to decline.

For countries still in the process of demographic transition, there is the clear expectation that they will continue with this transition at least until reaching replacement level fertility. For countries in the post-transition stage, however, there is no useful theory that would tell us where fertility levels are heading. Previously, the expectation was that all countries would converge to replacement level fertility or a Total Fertility Rate (TFR) of 2.1, implying that countries that were still above replacement would never fall below. The assumption was also reflected in the series of population projections published by the United Nations (UN) Population Division until some years ago, when the point of assumed universal convergence was lowered from 2.1 to 1.85. But currently the great majority of the countries of the EECA region is significantly below this level. In 2006, the six countries with the lowest TFRs in Europe were all in the EECA region (Russia, Belarus, Poland, Slovakia, Moldova and Bosnia and Herzegovina all had a TFR of below 1.3). Except for Central Asia, Turkey and Kosovo, all countries in the region have TFRs below 2.1. Many demographers expect that these very low levels will be a temporary phenomenon and there is likely to be some recovery over the coming years, in part due to the end of the fertility depressing tempo effect and in part due to the positive effect of family related policies in some of the countries. It remains unclear, however, what the longer term fertility levels will be.

There are several ways of communicating this uncertainty about future trends. The traditional way is to present high, medium and low variants that typically are based on alternative fertility assumptions and are said to cover a "plausible range" of future trends. Two of the shortcomings of this traditional approach namely that the user is not told what precisely is meant by "plausible" and that the variants disregard uncertainty in the two other components of change, that is, mortality and migration are overcome by newer methods of probabilistic population projections. The International Institute for Applied Systems Analysis (IIASA) produced such probabilistic projections for major world regions, published in the leading science journal *Nature* in 2008[1]. These projections are based on 1000 independent simulations, which draw

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[1] W. Lutz, W. Sanderson, and S. Scherbov (2008). The coming acceleration of global population ageing. Nature 451: 716-719.

the annual fertility, mortality and migration levels from uncertainty distributions defined by expert arguments, and the analysis of past projection errors[2]. Graphs throughout this report show the results of these simulations in terms of fractiles of the uncertainty distribution. The medians (.5 fractile) indicate the levels at which half of the simulated cases are above and half below that level.

Population Size

In the IIASA projections the EECA region is comprised of three sub-regions: "European part of the former Soviet Union," which is dominated by Russia, Ukraine and Belarus but does not include Central Asia; "Eastern Europe" which essentially comprises the formerly Socialist countries of Europe that were not part of the Soviet Union and the region of "Central Asia".

In Eastern Europe and the European part of the former Soviet Union, the overall decline in population size over the coming decades is a near certainty; the only question is how rapidly and by how much the population size will decline. The IIASA projections reveal that the population will shrink steadily throughout the century, although the uncertainty range also increases over time. Figure 1 illustrates how in the European part of the former Soviet Union, the population is expected to essentially fall by half over the course of this century from currently around 230 million to (in terms of the median) to 203 million in 2030, 168 million in 2050, 130 million in 2075 and 108 million in 2100. The 80 per cent uncertainty range is 147-192 million in 2050 and 68-150 million in 2100. Where the future population size will come to lie within these ranges will depend predominantly upon the future level of fertility, but also on those of mortality and migration. Although these future trends of fertility, mortality and migration are assumed to be highly uncertain, much of the future decline is already embedded in the current age structure of the population, a fact that allows population projections to go much further into the future than projections in other areas such as economic development.

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