

*Challenges of the World Population
in the 21st Century.*

*The changing age structure of population and its
consequences for development*

Panel discussion – Thursday, 12 October 2006

Dag Hammarskjold Library Auditorium of United Nations

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Trends, Issues, and Problems of the World Population

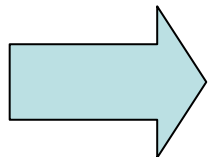
Growth of the World Population:

A global concern along more than 300 years, object of intense research activity – starting from the counter position between Malthus and Marx - and several World Conferences.

The Population Commission created in 1948 was among the first ones at the UN

Population Conferences: Rome 1954 and precedents

1. **International Statistical Congress**, 1853, organized by Quetelet in Brussels
2. **International Demographic Congress**, 1878, organized by Bertillon and Chervin in Paris
3. **World Population Conference**, 1927, Geneva (with 27 different countries represented amongst its participants)



Foundation of the International Union for the Scientific Study of Population

4. **Rome 1954 Conference**, a World Academic Conference, organised by United Nations Secretariat, with the cooperation of the International Union for the Scientific Study of Population: 157 speakers; 547 participants (488 from 60 different countries and 59 from international organizations); 29 sessions dealing with: fertility, mortality, migration (international and internal), age structure, projections, methods, demographic aspects of economic and social development

Population Conferences: after Rome 1954 to today

5. **World Population Conference:** Belgrade 1965
1. **World Population Conference:** Bucharest 1974 (intergovernmental; twenty-year Plan of Action)
2. **World Population Conference:** Mexico City 1984 (intergovernmental)
3. **International Conference on Population and Development:** Cairo 1994 (intergovernmental; twenty-year Plan of Action)

- **Rome 2005, *Trends and Problems of the World Population in the 21st Century. 50 years since Rome 1954***, an Academic Conference, organised by Accademia Nazionale dei Lincei and University of Rome “La Sapienza”: 26 speakers; 152 participants; 5+1 sessions: The past and the future of the world population: certainties and uncertainties; Changing population paradigms post ICPD; Population inequalities; Discontinuities: food security, environment and illness; Policies; European and Italian population problems

4? 2014 ?

Rome 2005

World population problems and issues

To sum up, the major characteristics of the World population growth in the first half of the 21st Century, emerged in the papers (mainly from the Chamie's one) and during the discussion, are the following:

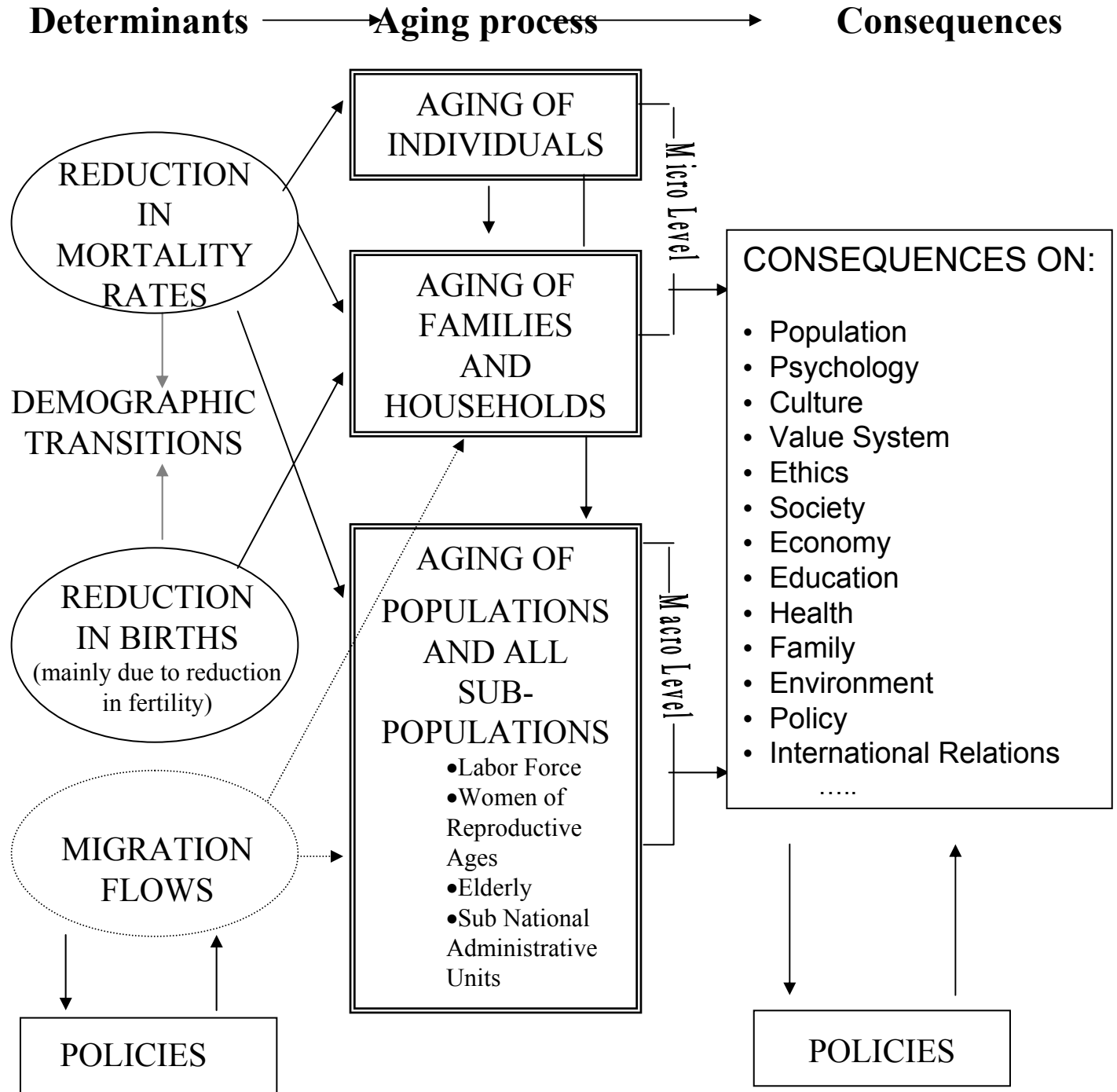
- a) a more crowded world, with a growing population;
- b) a growing concentration of the world population in developing countries;
- c) a declining population in many developed countries;
- d) a lower total fertility rate;
- e) a lower mortality;
- f) older populations with an increased longevity;
- g) a more and more urban population and bigger cities;
- h) an increase in international migrations and ethnic diversities;
- i) progress in women equality;
- j) changes in family composition and structure.

Rome 2005

World population problems and issues

Provided that demographic processes are not interrupted by elements of discontinuity at the international and national levels, in the first decades of the 21st century many of the main problems come from divergences and differences in timing and speed of fertility change, increase of life expectancy (and migration flows, too). And from a widespread **aging of population**.

Conceptual framework of the aging process: Its magnitude and complexity



Ageing: intensity vs speed

Ageing: intensity vs activity rate

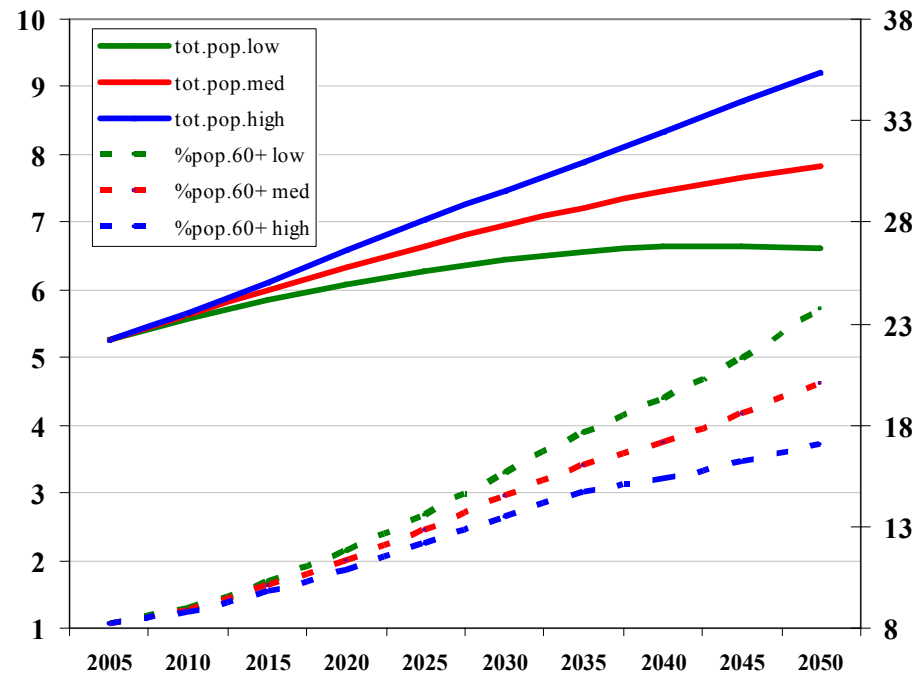
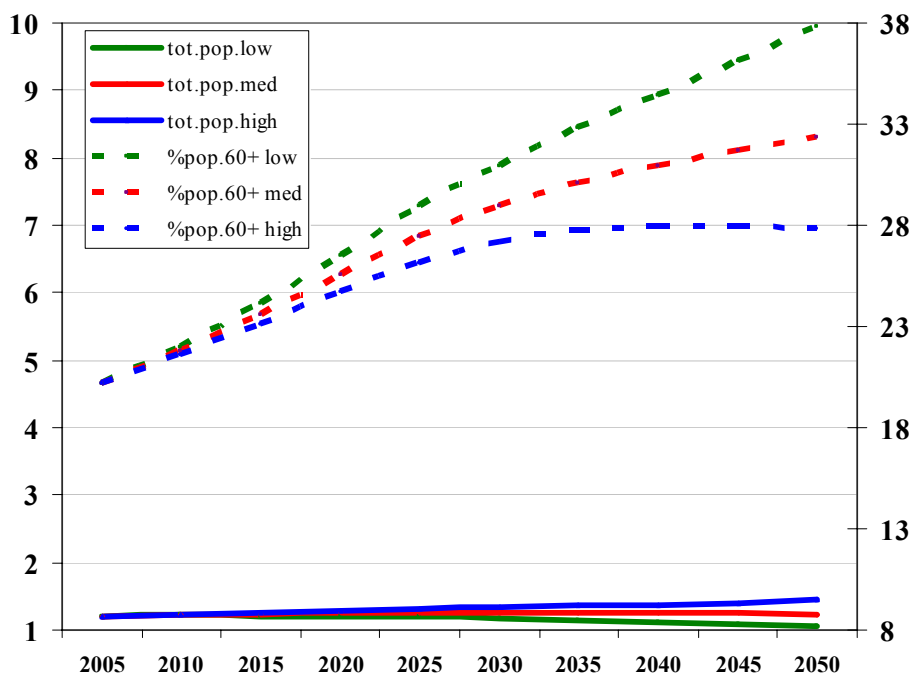
Population aged 60 years or over

Source of basic data: *Population Ageing 2006*, UN, Desa, Population Division

Country or area	Population 60+ Millions		Percentage of total population		2006 to 2050 increase		Percentage in labor force, about 2006	
	2006	2050	2006	2050	mln	2050	men	women
More developed regions	248	400	20	32	152	61	22	11
Less developed regions	440	1,568	8	20	1,128	256	50	19
<i>Least developed countries</i>	<i>40</i>	<i>171</i>	<i>5</i>	<i>10</i>	<i>131</i>	<i>328</i>	<i>71</i>	<i>37</i>
World	688	1,968	11	22	1,280	186	40	16

Ageing: speed of population changes vs speed of population aging

The case of MDR (on the left) and LDR (on the right)



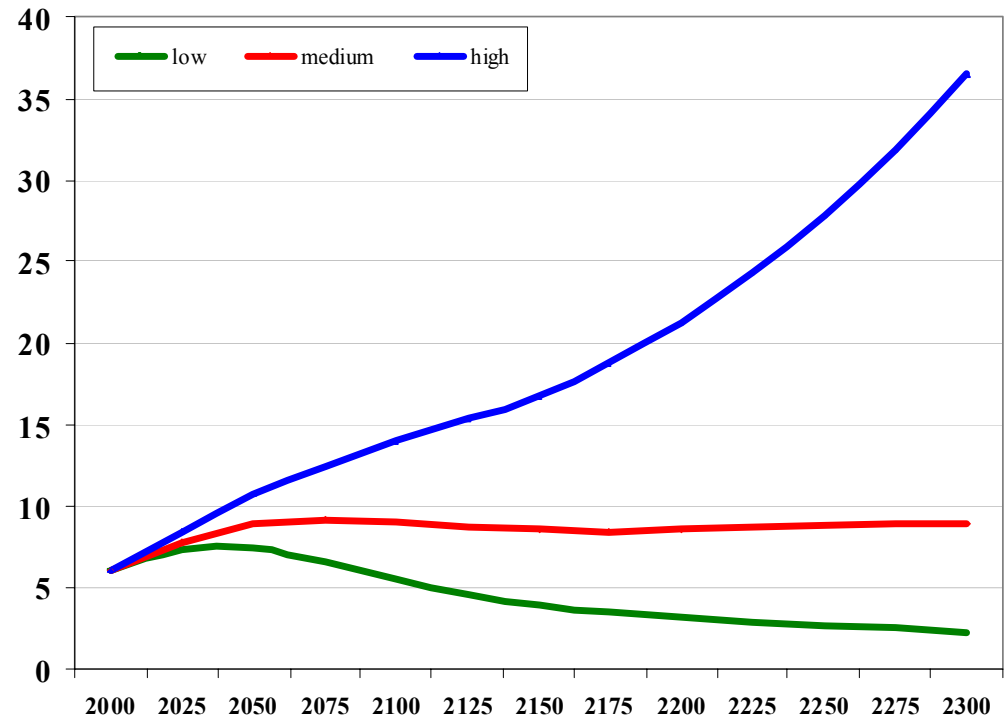
The importance of future fertility for the sustainability of demographic, social, and economic system

Some demographic consequences of alternative paths of future fertility in some Countries in different phases of the two demographic transitions between 2000 and 2050

Country	Fertility variant (on the left the 2000-05 value; on the right the 2045-50 values)	Annual average 2045-50			2005-50 population change (thousands)		
		Births (thousands)	Deaths (thousands)	Ratio D/B	Less than 80	80 or over	Total
Nigeria	High 2.90	6 817	2 675	0.39	+163 837	+ 1 480	+165 318
	5.85 Medium 2.40	5 010	2 407	0.48	+125 098		+126 579
	Low 1.90	3 470	2 260	0.65	+89 434		+90 914
Egypt	High 2.44	2 584	905	0.35	+71 951	+ 2 665	+74 616
	3.29 Medium 1.94	1 707	891	0.52	+49 218		+51 883
	Low 1.44	1 013	880	0.87	+29 981		+31 646
China	High 2.35	23 097	19 089	0.83	+245 560	+ 85 785	+331 345
	1.70 Medium 1.85	14 279	18 883	1.32	-9 322		+76 463
	Low 1.35	7 615	18 710	2.46	-230 370		-144 585
Italy	High 2.35	689	820	1.19	-4 481	+ 4 770	+0.281
	1.28 Medium 1.85	429	818	1.91	-11 951		-7 181
	Low 1.35	234	816	3.49	-18 518		-13 748

Source of basic data: UN, *World Population Prospects. The 2002 Revision*, New York, 2005

Possible long-term growth of the World population: alternative scenarios to 2300



Source: UN, *World Population to 2300*, New York, 2004

The narrow path of future fertility.

Number of children per woman of the World (TFR), by scenario: 1995-2300

Period	Variant		
	Medium	High	Low
1995-2000	2.830	2.830	2.830
2095-2100	1.914	2.172	1.668
2195-2200	2.053	2.350	1.850
2295-2300	2.051	2.350	1.850

The current (1995-2000) TFR is 1.575 in MDR, 3.113 in LDR and 5.350 in LLDR

A relation between demography, aging and GDP

$$\text{GDP} = \frac{\text{GDP}}{\text{Employed}} * \frac{\text{Employed}}{\text{Working Age Population}} * \frac{\text{WAP}}{\text{Population}} * \text{Population}$$

|productivity|
| economic components || demographic components|

Fonte: Leanza, 2005

Demography, aging and GDP

$$\text{GDP} = \frac{\text{GDP}}{\text{Employed}} * \frac{\text{Employed}}{\text{Working Age Population}} * \frac{\text{WAP}}{\text{Population}} * \text{Population}$$

$$11,711.8 = \frac{11,711.8}{139.3} * \frac{139.3}{164.9} * \frac{164.9}{293.7} * 293.7 \quad \text{USA}$$

$$1,677.8 = \frac{1,677.8}{22.4} * \frac{22.4}{32.2} * \frac{32.2}{57.6} * 57.6 \quad \text{ITALY}$$

$$\frac{11,711.8}{1,677.8} = \frac{84.1}{74.9} * \frac{0.845}{0.696} * \frac{0.561}{0.559} * \frac{293.7}{57.6} \quad \frac{\text{USA}}{\text{ITALY}}$$

$$6.98 = 1.12 * 1.21 * 1.00 * 5.10 \quad \frac{\text{USA}}{\text{ITALY}}$$

GDP (current US\$) in billions, 2004
source: World Bank

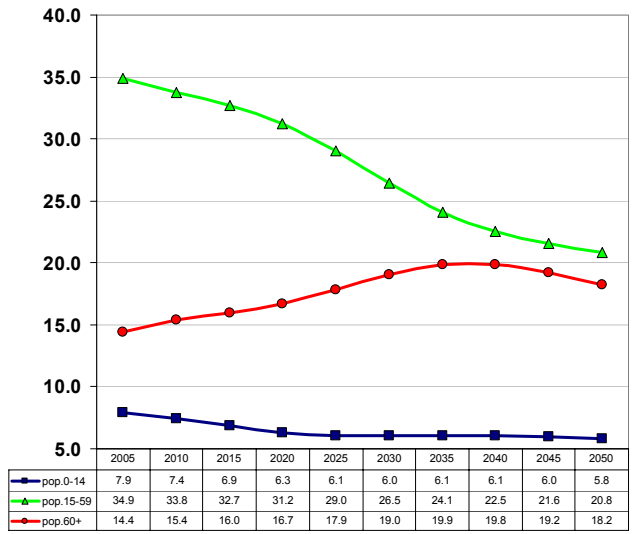
Employed in millions, 2004
source: USA, ILO; ITALY, ISTAT

WAP (population. aged 20-59) in millions, 2005
source: UN, population estimates

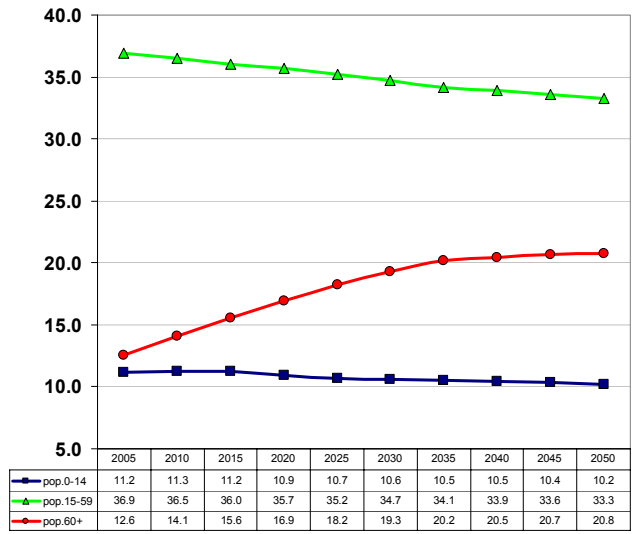
Population in millions, 2004
source: World Bank

Population prospects (millions) by broad age groups, 2005-2050

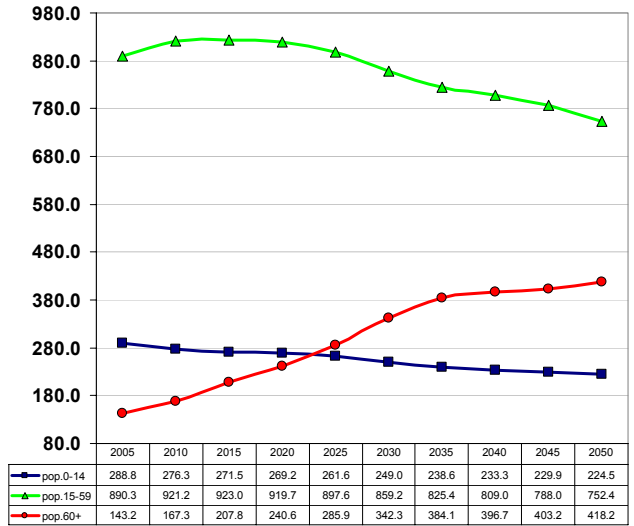
ITALY



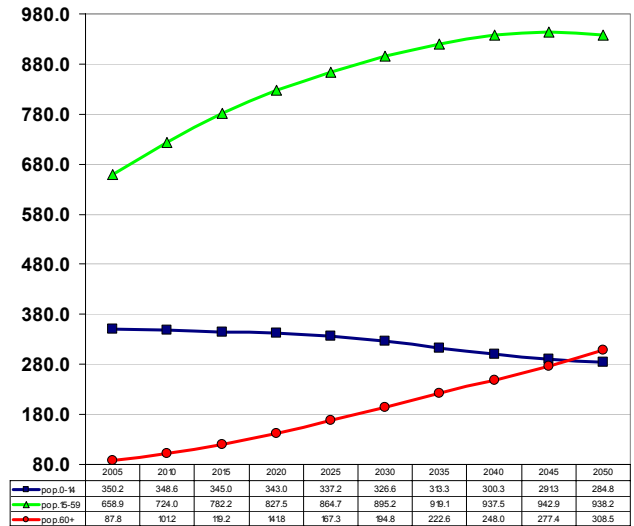
FRANCE



CHINA

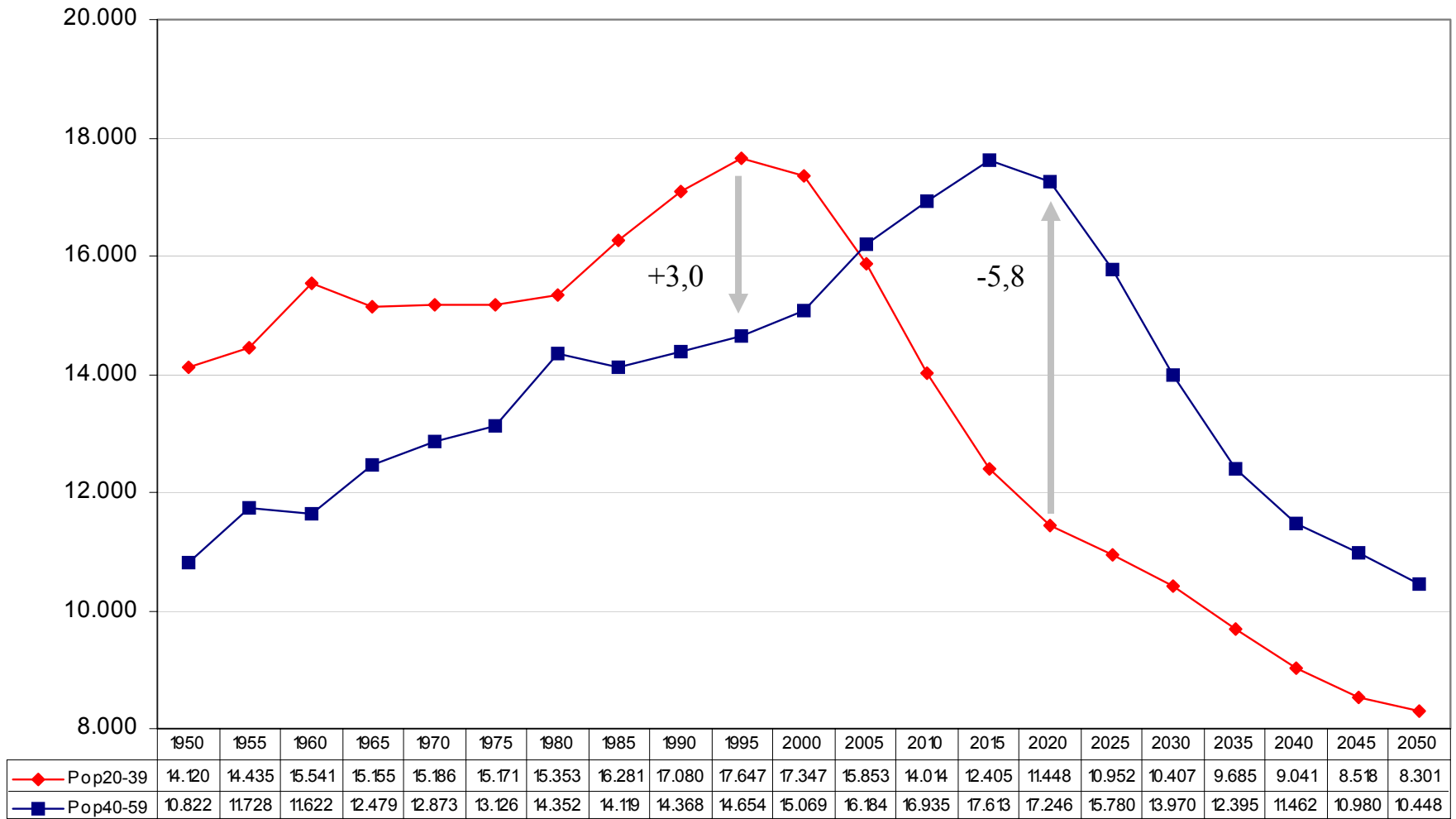


INDIA



Source of basic data: UN, *World Population Prospects. The 2002 Revision*, New York, 2003

Huge decrease and aging of working age population, Italy 1950-2050 (broad age groups (20-39 and 40-59), 000)



Source: UN, *World Population Prospects. The 2002 Revision (medium variant)*, New York, 2003

Aging of individuals

Currently (majority of more developed Countries)
at *age of 60* survive:

- 95 per cent of females
- 90 per cent of males

At *age of 80*:

- 70 per cent of females
- 50 per cent of males

Therefore further possible and generalized gains in
expectation of life can be obtained:

- for females mainly after 80;
- for males mainly after 60;

Aging of individuals

What's the actual age at death?

For instance, according to the Italian population:

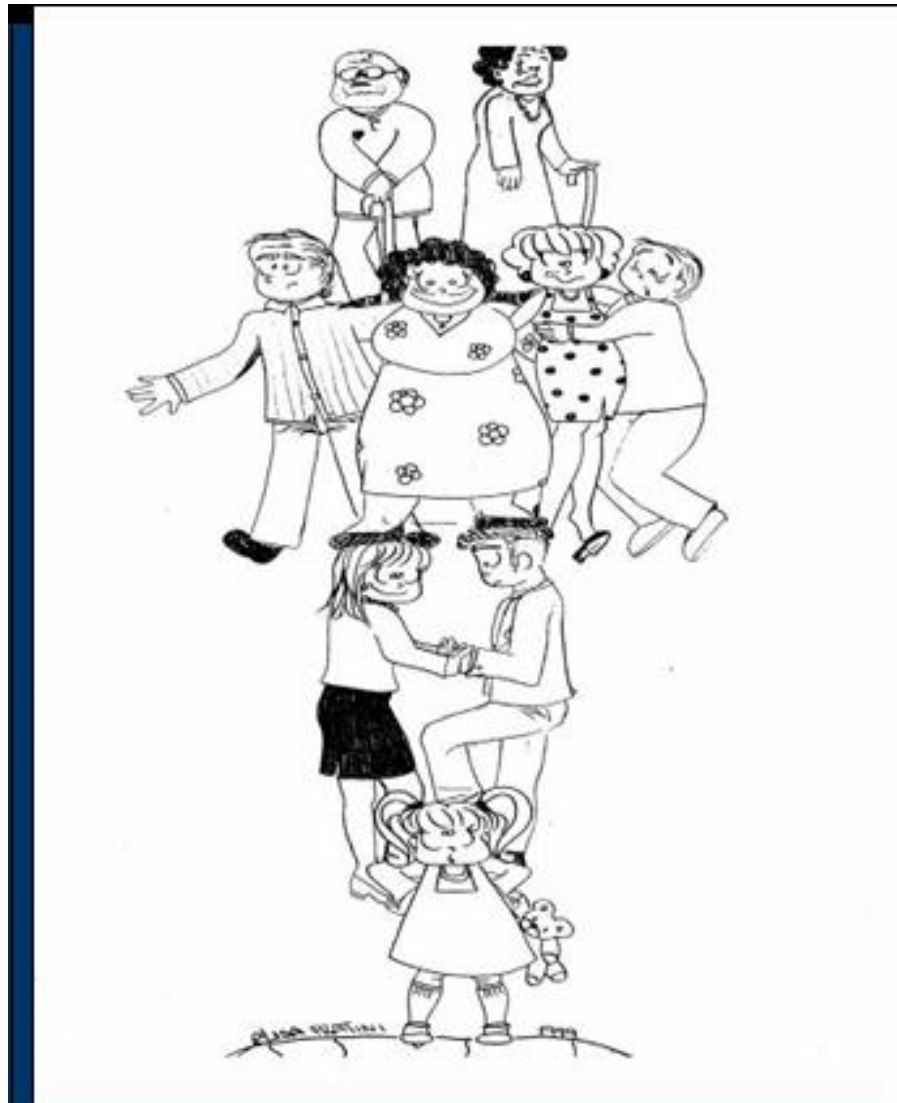
- 1 out of 10 males die after age 90
- 1 out of 4 females die after age 90

Is there an age at death “unsustainable” from a collective point of view?

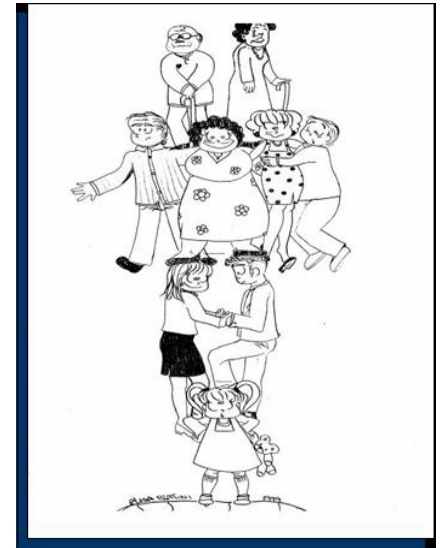
And also from an individual point of view?

Aging of families and households

The coexistence of several generations in Western countries



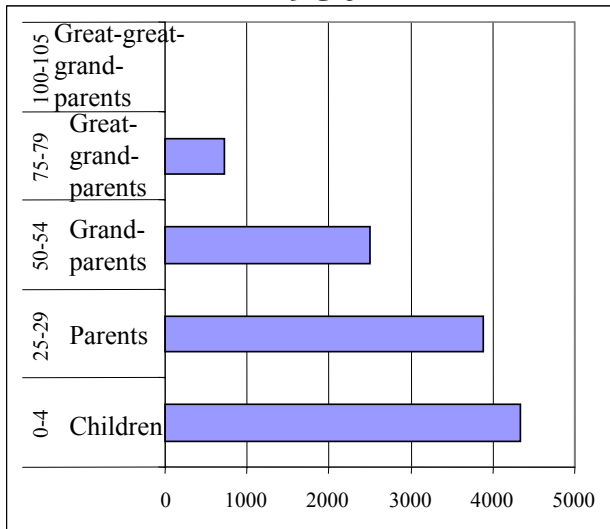
The multiplication of one-child or childless (childfree???) families



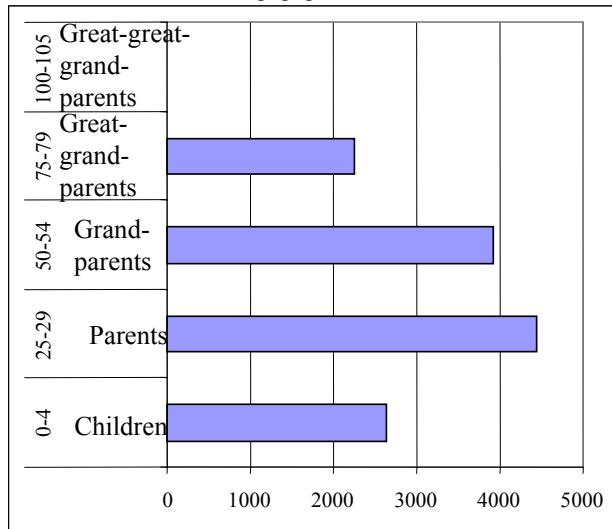
It requires more and more the growth of an intra-generational solidarity among elderly, to be implemented side by side with the traditional inter-generational one

A rough evaluation of the size of 5 coexistent generations (in thousands), Italy 1950, 2000, 2050

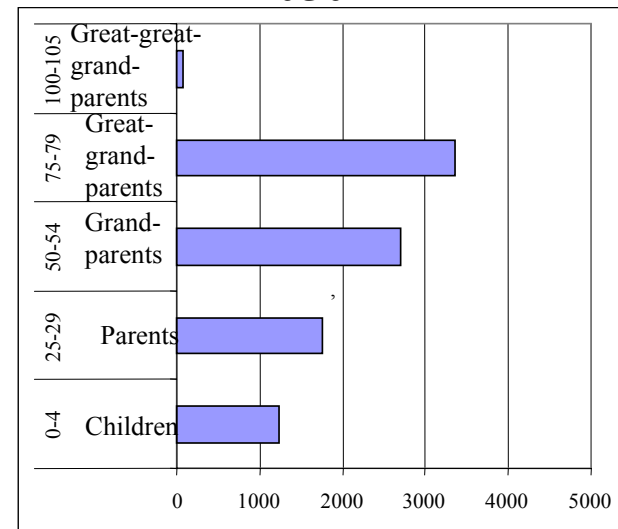
1950



2000



2050



Fonte: our elaboration on data UN, *World Population Prospects. The 2002 Revision*, New York, 2003

To conclude

Analysis of World population problems and issues

Population analyses have at least two great advantages compared to analyses in some other social and economic fields:

- a) they take into account expectations, attitudes, and behavior of individuals, families, and collectivities;
- b) they take into account the generation chain, which links one generation to the next in a profound relationship that touches all aspects of life and the death.

Therefore one of today's most delicate demographic issues is how to reconcile the individual's interest with the collective one.

Analysis of World population problems and issues

All the analyses point out the need to return to an holistic demographic and population assessment, taking into consideration:

- a) **three levels of analysis:** the micro one, consisting of individuals, the meso one, consisting of families, the macro one, consisting of population;
- b) **three levels of population changes:** the demographic, economic, social, regulatory, biological and cultural *causes*; the demographic *process* in itself; the demographic, economic, health, cultural and geopolitical *consequences*, considered in a national and international dimension;
- c) **three time levels:** short-term (5-10 years), medium-term (10-30 years) and long term (30 years or more);
- d) **the various territorial levels:** from large regions to microcosms; from rural zones to urban ones and large metropolis, in order to assess international imbalance which has an effect also on economic competitiveness, and international imbalance, which, inter alia, has an effect on the survival of marginal areas.

The challenge of an ever longer life from *individual and familiar* point of view

In evaluating the future situation one can find elements of pessimism and optimism. Of course, nobody can await that in the future *all* elements of pessimism or optimism come true.

Judging with the to-day eye one can imagine that the elements of pessimism could prevail, when and where population aging is very intense and rapid. And this because of the great difficulties to adjust economic, social, welfare, familiar, and psychological structures and services timely and adequately.

Along more than seven centuries - from the middle of XIII century to the middle of the XX one – all over in Europe a large number of new-born were abandoned and subjected to a very high infant mortality. Should negative factors prevail, the risk is to have in the future a widespread phenomenon of abandoned aged people.

The challenge of an ever longer life from a *collective* point of view

While the XX century has turned out to be the one of populations' growth and socio-economic development, the XXI century might come out as the one of population' aging.

We have to well understand the aging process, to be aware of it, and to successfully face it.