Co-funded by the
Erasmus+ Programme
of the European Union

Demography and migration

Professor Alessandra Venturini

Co-funded by the
Erasmus+ Programme
of the European Union

Drivers of Migration

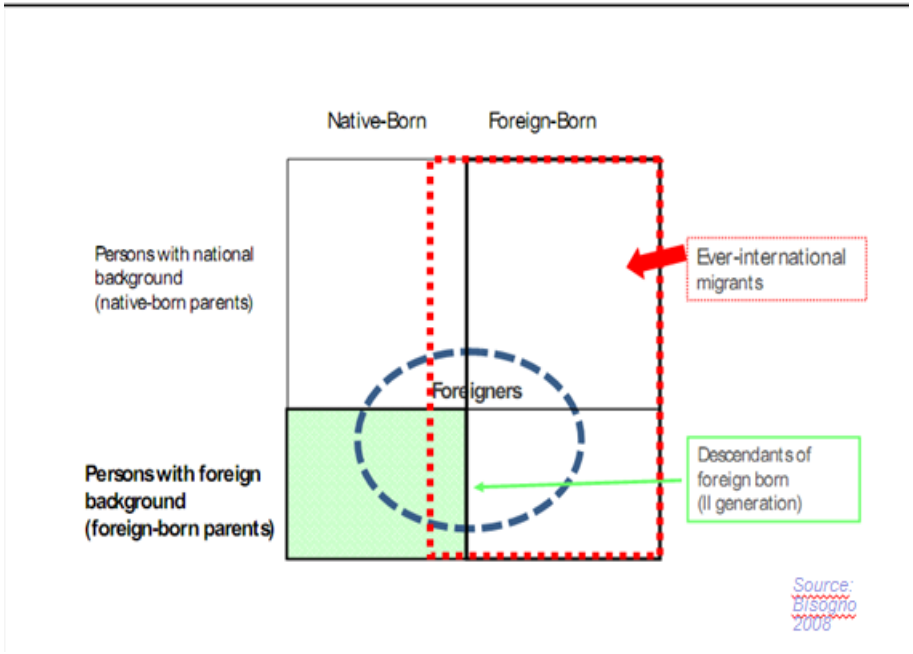
Economic drivers

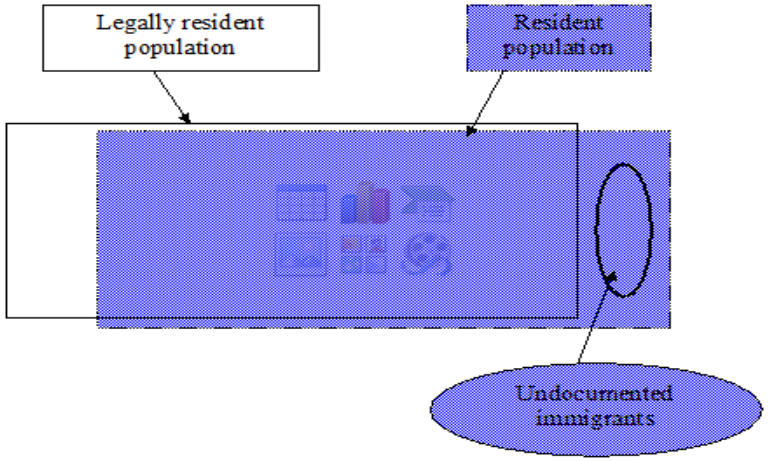
Vs.

Demographic drivers

Co-funded by the
Erasmus+ Programme
of the European Union

The effect on the population





- What do you want to measure?
- Which question are you trying to answer?

Co-funded by the
Erasmus+ Programme
of the European Union

	Births 2001**	Deaths 2001**	NATURAL CHANGE		Immigrants 2001**	Emigrants 2001**	NET MIGRATION
ITALIA	544,550	544,094	456		1,582,707	1,417,184	165,523

$$P_{31.12.2001} = P_{1.1.2001} + \mathbf{NC}_{2001} + \mathbf{NM}_{2001}$$

$$P_{31.12.2001} = 57.844.017 + \mathbf{456} + 165.523$$

$$P_{31.12.2001} = 58.009.996$$

Co-funded by the
Erasmus+ Programme
of the European Union

But net migration is not appropriate if you want to understand the outflows from a country of origin. Though you have to know:

- **Migration pressure**
- **Gross migration**

Co-funded by the
Erasmus+ Programme
of the European Union

Migration rates for total populations are usually defined as the **number of events** divided by the **mid-period population**

$$\text{Rate of inward migration} = \frac{\text{arrivals}}{\text{mid-period population}} \times 1000$$

$$\text{Rate of outward migration} = \frac{\text{departures}}{\text{mid-period population}} \times 1000$$

$$\text{Rate of net migration} = \frac{\text{arrivals} - \text{departures}}{\text{mid-period population}} \times 1000$$

$$\text{Rate of gross migration} = \frac{\text{arrivals} + \text{departures}}{\text{mid-period population}} \times 1000$$

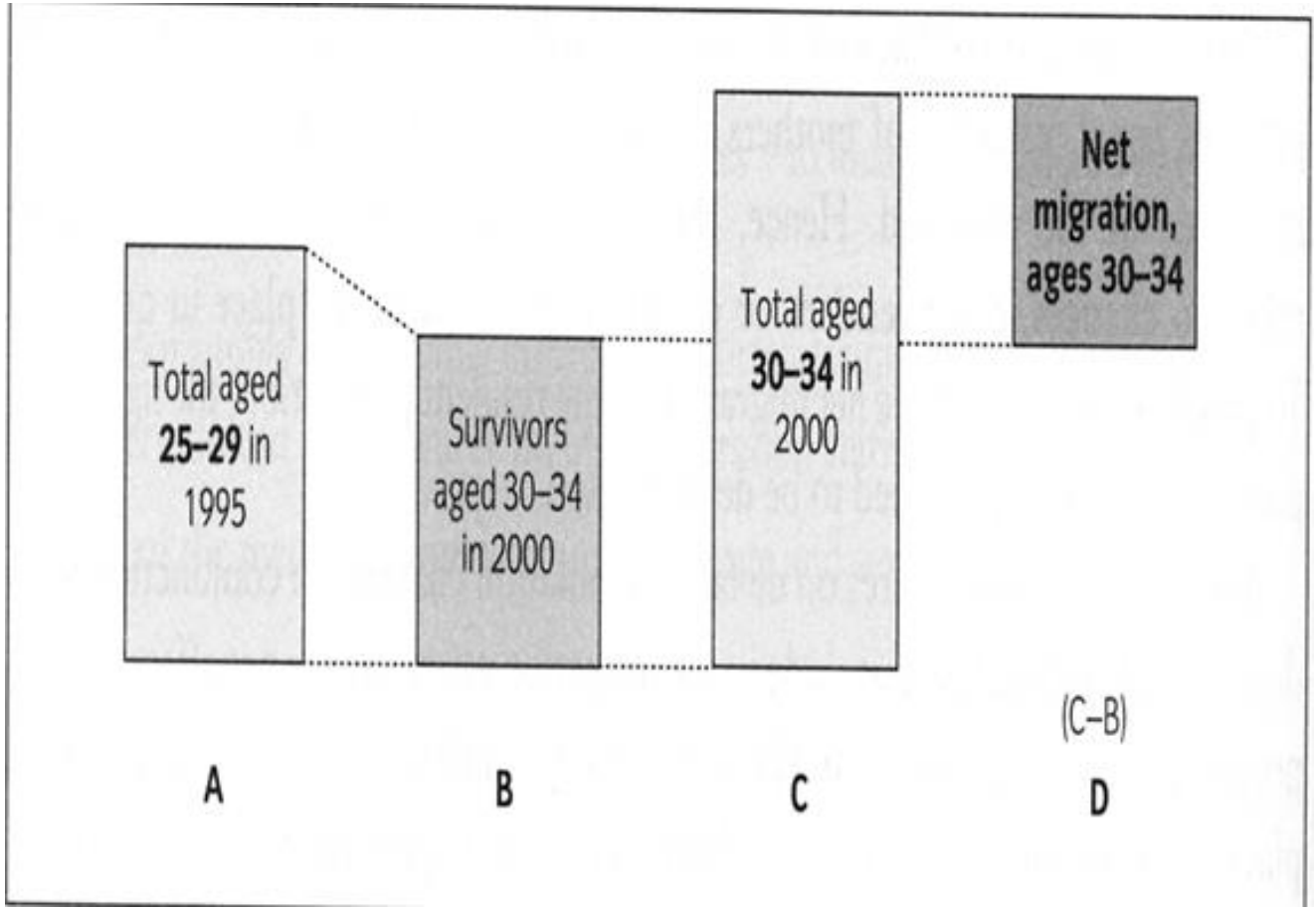
! *Impossibility of "population at risk of inward migration"*

Co-funded by the
Erasmus+ Programme
of the European Union

An example of estimating net migration (from vital statistics)

Region	Births 1995–2000	Deaths 1995–2000	Natural Increase 1995–2000	Total Population Change 1995–2000	Net Migration 1995–2000
A	B	C	(B – C) D	E	(E – D) F
North	252 344	126 941	125 403	265 621	140 218
South	9 440	8 317	1 123	26 211	25 088
East	37 750	19 510	18 240	26 820	8 580
West	23 059	8 682	14 377	27 520	13 143
Total	322 593	163 450	159 143	346 172	187 029

Co-funded by the
Erasmus+ Programme
of the European Union

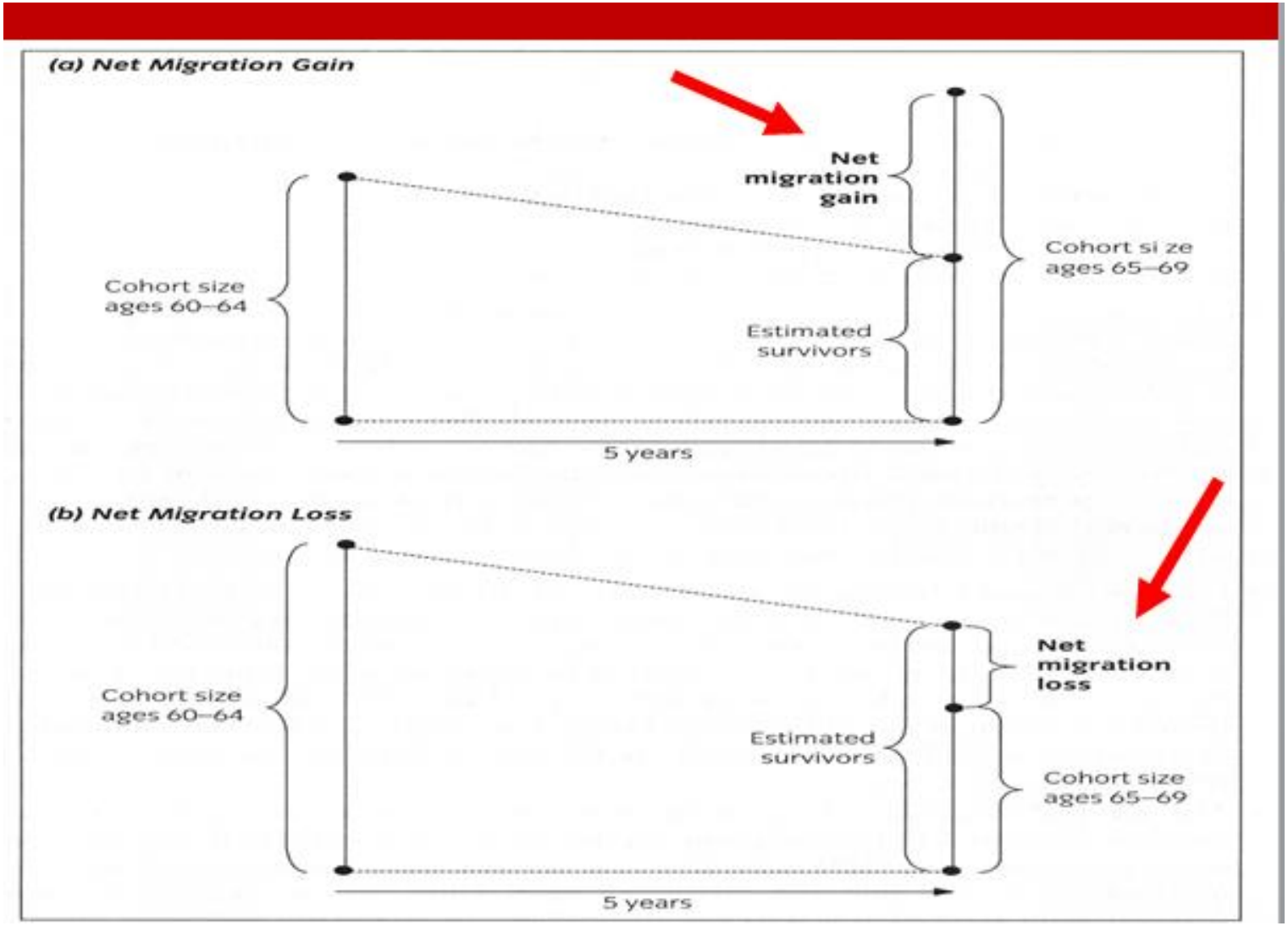


Co-funded by the
Erasmus+ Programme
of the European Union

TAB. 1.7. *Saldi migratori medi annui nelle principali aree geografiche e in alcuni paesi europei, 1950-2000 (valori assoluti in migliaia)*

Aree geografiche	1950-60	1960-70	1970-80	1980-90	1990-2000
Europa settentrionale[a]	–103	–12	6	19	157
Regno Unito	–54	–2	–18	10	96
Svezia	8	21	10	16	21
Europa occidentale	207	430	230	312	550
Francia	96	198	66	53	64
Germania	99	170	122	184	383
Europa orientale[b]	–315	–170	2	134	99
Russia	–133	–134	32	208	416
Ucraina	–36	59	25	22	–11
Europa meridionale[c]	–268	–315	63	10	330
Italia	–101	–83	–3	–14	118
Spagna	–78	–60	15	19	118
Europa[d]	–480	–64	304	479	1.139

Co-funded by the
Erasmus+ Programme
of the European Union



Co-funded by the
Erasmus+ Programme
of the European Union

$$\text{Net } M'_{x+n} = P^n_{x+n} - S \times P^0_x$$

where

Net M'_{x+n} is the estimated net migration for the end-of-period population aged x + n, obtained by forward survival

n is the interval in years between the two dates

P^0_x is the initial population aged x

P^n_{x+n} is the end-of-period population aged $x + n$

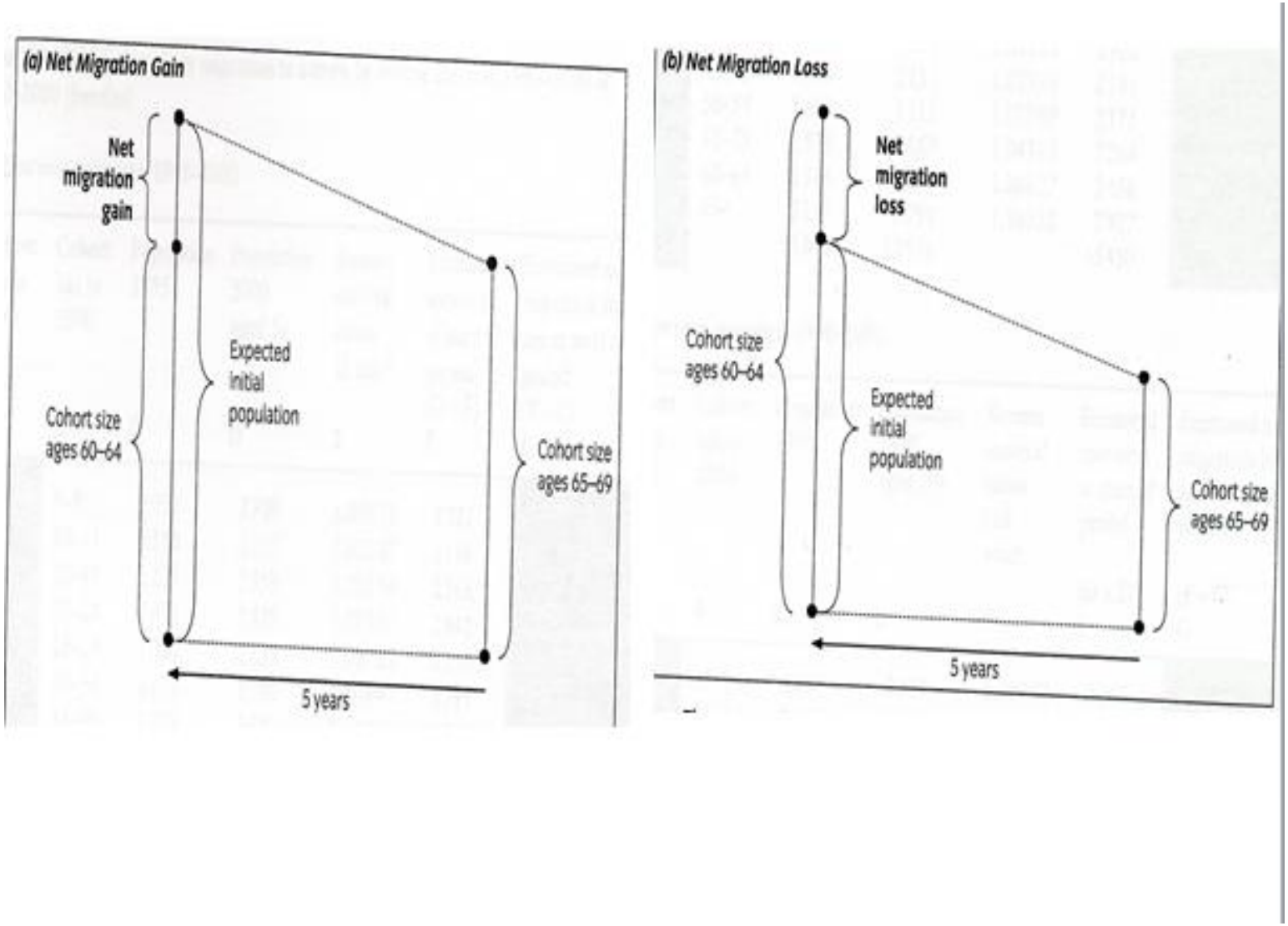
S is the survival ratio from age x to age $x + n$.

The numbers in a cohort at the start are multiplied by their survival ratio, then the resulting estimate of survivors is subtracted from the cohort's numbers at the end of the period

The outcome is the net migration estimate

73

Co-funded by the
Erasmus+ Programme
of the European Union

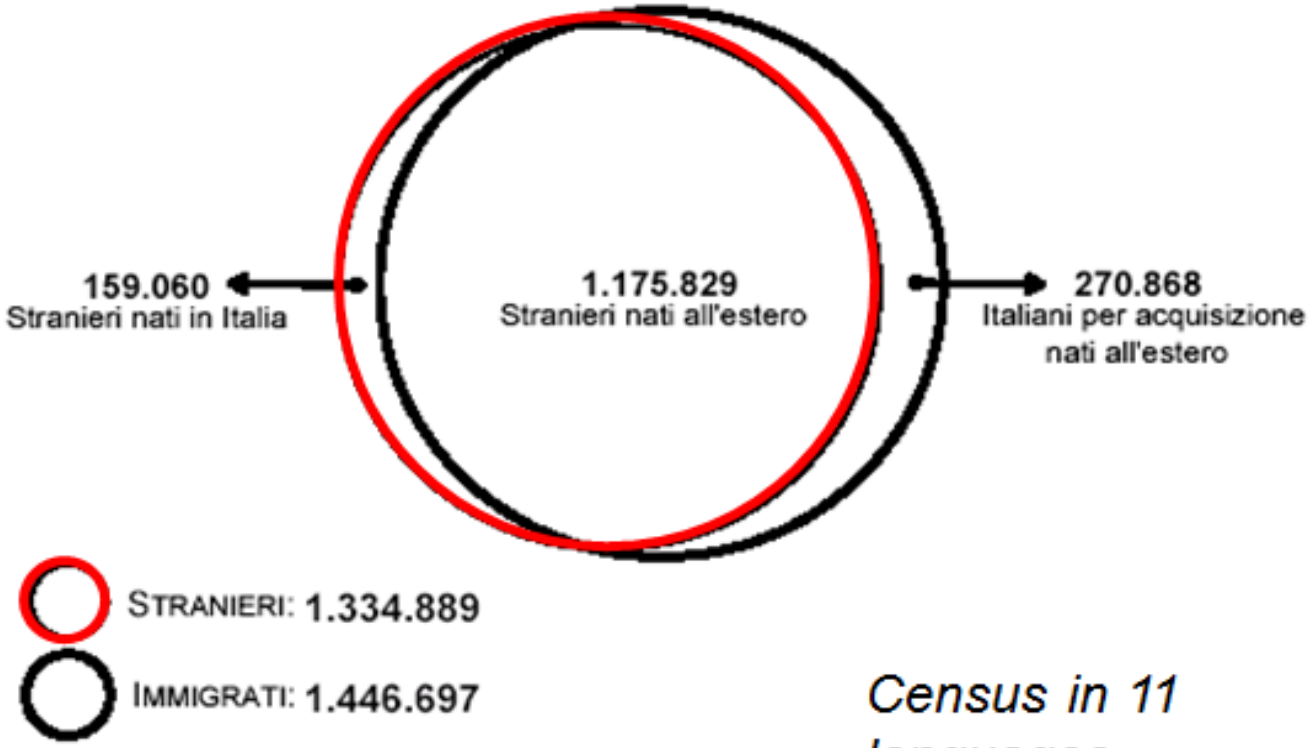


Co-funded by the
Erasmus+ Programme
of the European Union

Remember the limitation of the data that you use!

Co-funded by the
Erasmus+ Programme
of the European Union

Figura 1 – Stranieri e immigrati residenti. Censimento 2001



Census in 11 languages

54

Co-funded by the
Erasmus+ Programme
of the European Union

Demographic Driver of migration in the DESTINATION COUNTRIES

Co-funded by the
Erasmus+ Programme
of the European Union

Replacement migration: Is it a solution for declining population?

Replacement migration refers to the international migration

- that would be needed to offset declines in the **size** of a population,
- declines in the population of **working age**
- as well as to offset **the overall ageing** of a population

Co-funded by the
Erasmus+ Programme
of the European Union

Europe's demographic situation

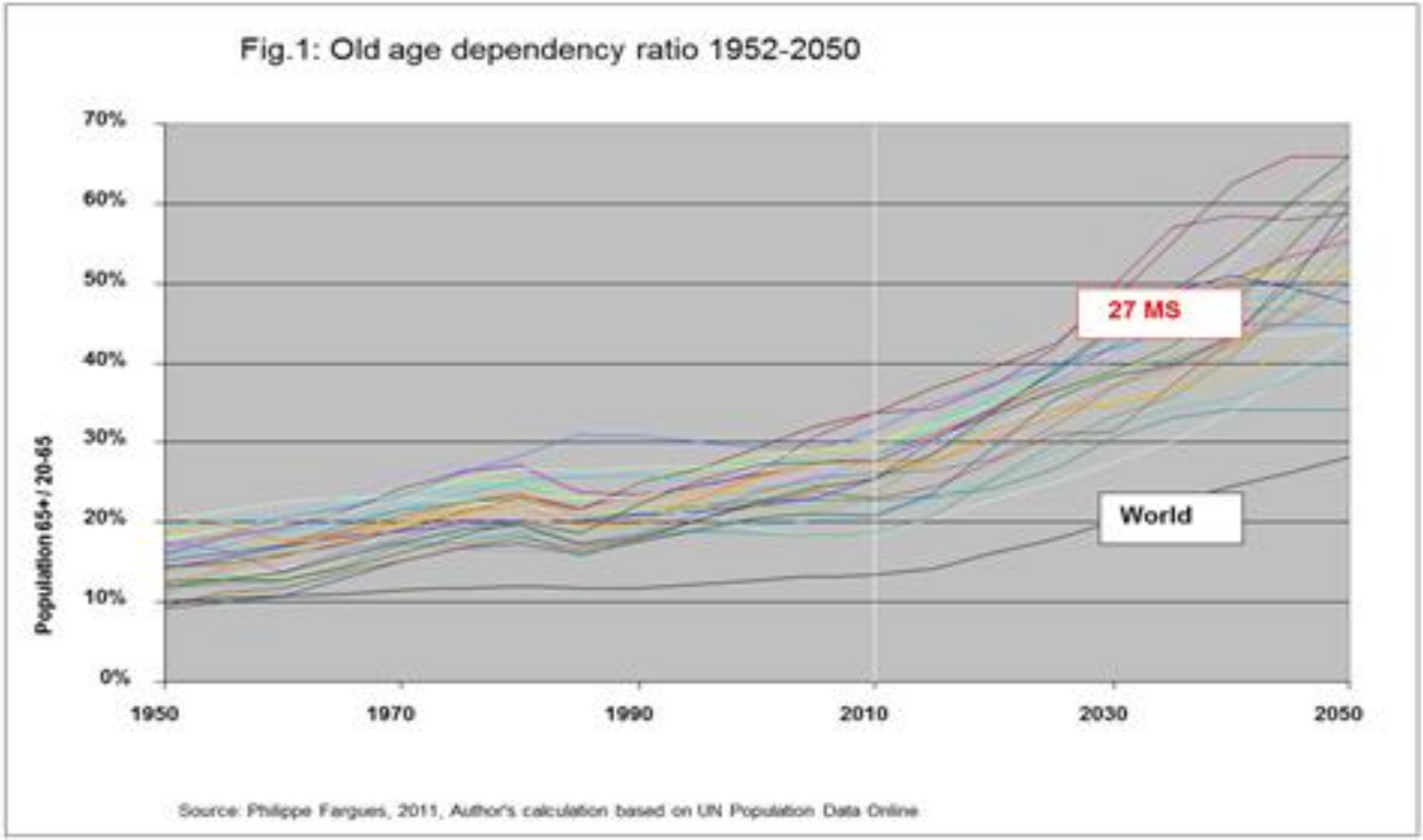
- Demographic projections show that Europe's population is **diminishing in size** as well as **becoming older.**
  - While on average around 2.1 children per woman of childbearing age are required to replace the population, the EU average is 1.53.
  - Life expectancy is increasing.
  - The proportion of those aged 65 and over is projected to rise to 22% by 2025.
  - Within this, the relative number of people of 80 and older is rising faster still.
  - This means that a growing number of people above retirement age will need to be supported by those in employment.
  - On present trends, the EU working age population will fall by approximately 40 million people from 2000 until 2050 and the old age dependency ratio will double from 24% to 49%.

Co-funded by the
Erasmus+ Programme
of the European Union

Europe's demographic situation

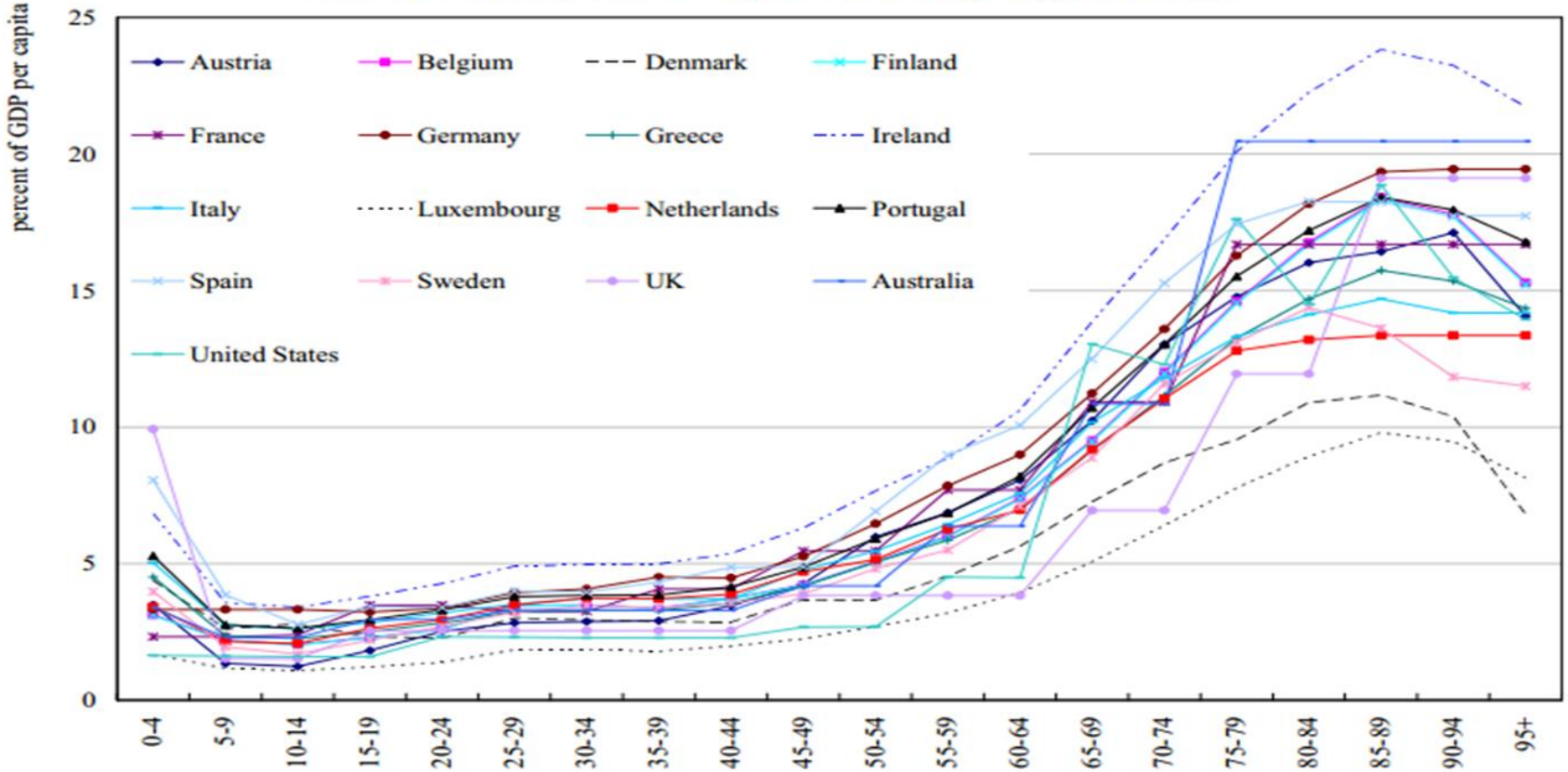
- **Regional differences** are significant for all the measures examined
  - whereas a number of regions including the south of France and Greece will not face population decline for decades, population is already declining in some regions of Spain, of Italy, of Germany and of the Nordic countries,
  - With regard to the old-age dependency ratio - the number aged 65 and over relative to those of working-age (15 to 64) - the most marked increases are expected to take place in Italy, Sweden, Finland and Germany and the smallest in Ireland, Portugal and Luxembourg.

Co-funded by the
Erasmus+ Programme
of the European Union



Co-funded by the
Erasmus+ Programme
of the European Union

Public Health Care Expenditure by Age Groups*



* Expenditure per capita in each age group divided GDP per capita.
Source: ENPRI-AGIR, national authorities and Secretariat calculations.

Co-funded by the
Erasmus+ Programme
of the European Union

Migration

- Migration is the most volatile of the components determining population size and structure
  - While fertility and mortality rates change gradually, the number of people entering or leaving a country can vary significantly from one year to the next.
  - The past 10 years have witnessed great fluctuations in European migration levels, as well as significant regional variations.
  - Future migration trends largely turn on policy decisions about migration needs in Europe. However, the 'supply' side in the form of continuing migration pressure from outside the EU is also a much-discussed aspect.
  - Researchers have added a demographic perspective to this theme by pointing out that the 'stagnating entity' Europe is 'surrounded by populations with run-away growth'.
  - Projections suggest that while in the post-world war II era, the population of **Spain was three times larger than Morocco's**; in about **2050 Morocco's population might be 50 per cent larger than Spain's**. A similar picture emerges when comparing France and Algeria or Germany and Turkey.

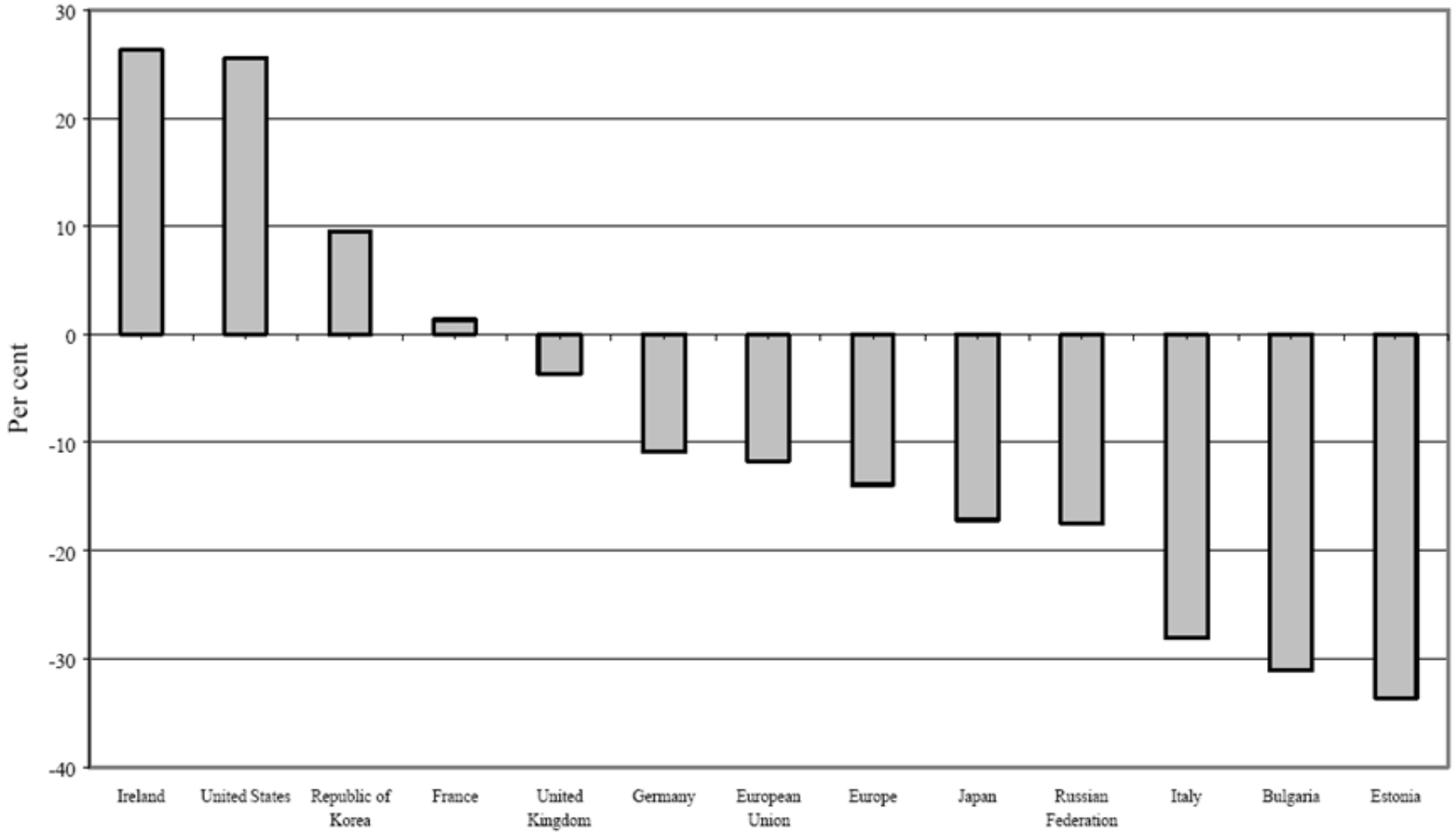
5

Co-funded by the
Erasmus+ Programme
of the European Union

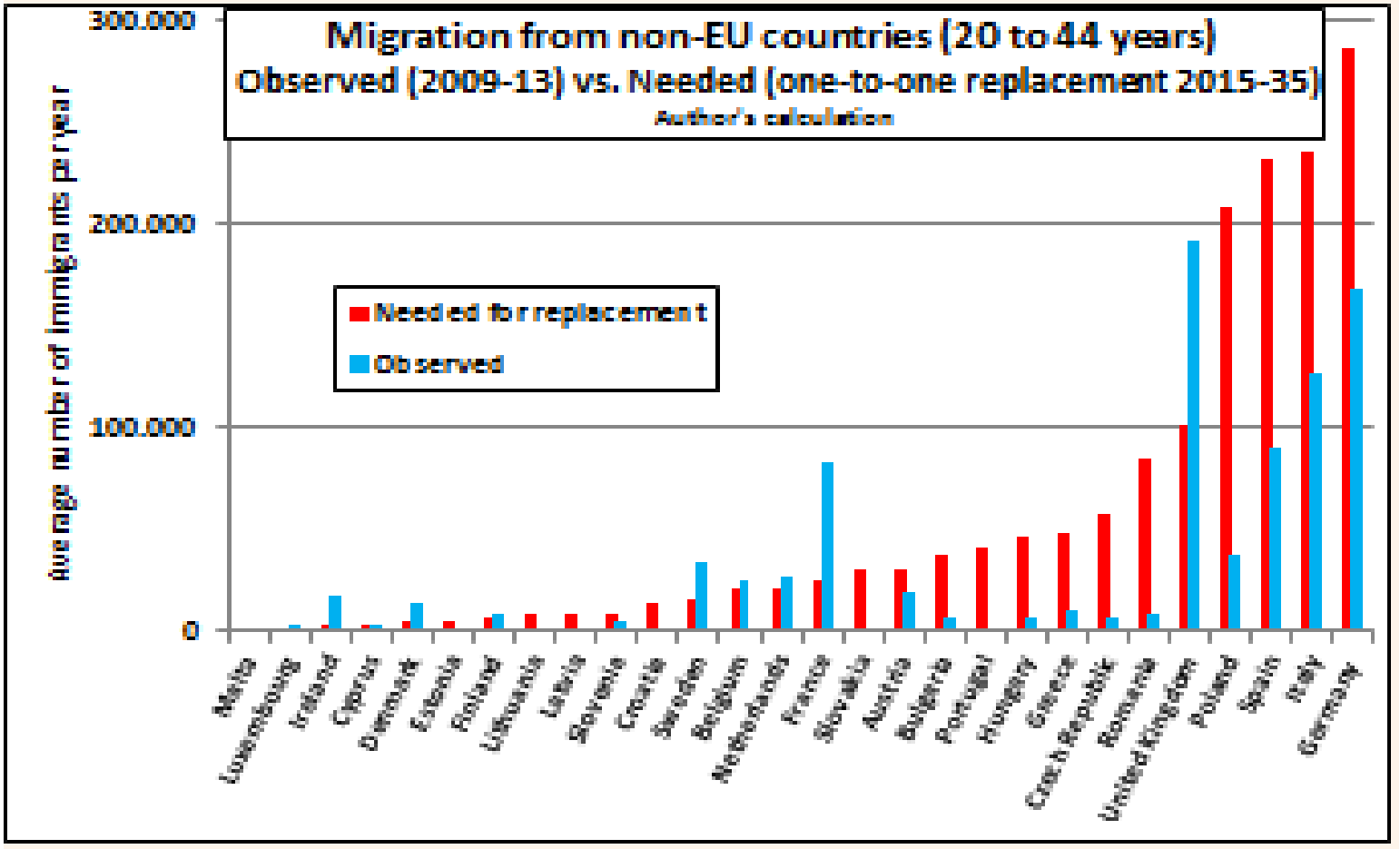
Replacement migration: Is it a solution for declining population?

Co-funded by the
Erasmus+ Programme
of the European Union

Figure I.1. Per cent change in total population for selected countries and regions, 2000-2050



Co-funded by the
Erasmus+ Programme
of the European Union



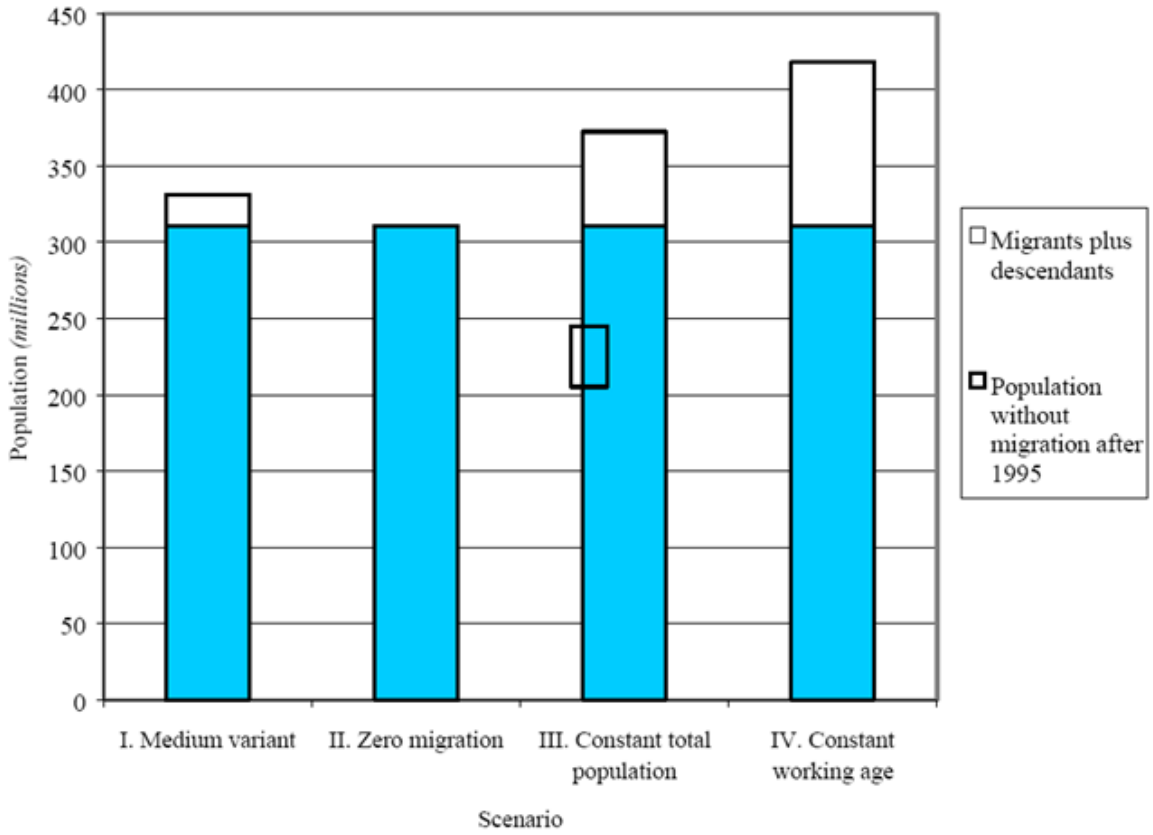
Co-funded by the
Erasmus+ Programme
of the European Union

POPULATION OF THE MEMBER COUNTRIES OF THE EUROPEAN UNION, 1995 AND 2050, SCENARIO I

Member countries as of 2000	*Population (thousands)*		*Projected change 1995-2050*	
	1995	*2050 (Scenario I)*	*(thousands)*	*(per cent)*
Austria	8 001	7 094	- 907	- 11.3
Belgium	10 088	8 918	- 1 170	- 11.6
Denmark	5 225	4 793	- 567	- 10.9
Finland	5 108	4 898	- 210	- 4.1
France	58 020	59 883	1 863	+ 3.2
Germany	81 661	73 303	- 8 358	- 10.2
Greece	10 489	8 233	- 2 256	- 21.5
Ireland	3 609	4 710	1 101	+ 30.5
Italy	57 338	41 197	- 16 141	- 28.2
Luxembourg	407	430	23	+ 5.7
Netherlands	15 459	14 156	- 1 303	- 8.4
Portugal	9 856	8 137	- 1 719	- 17.4
Spain	39 568	30 226	9 342	- 23.6
Sweden	8 800	8 661	- 139	- 1.6
United Kingdom	58 308	56 667	- 1 641	- 2.8
European Union	371 937	331 307	- 40 630	- 10.9

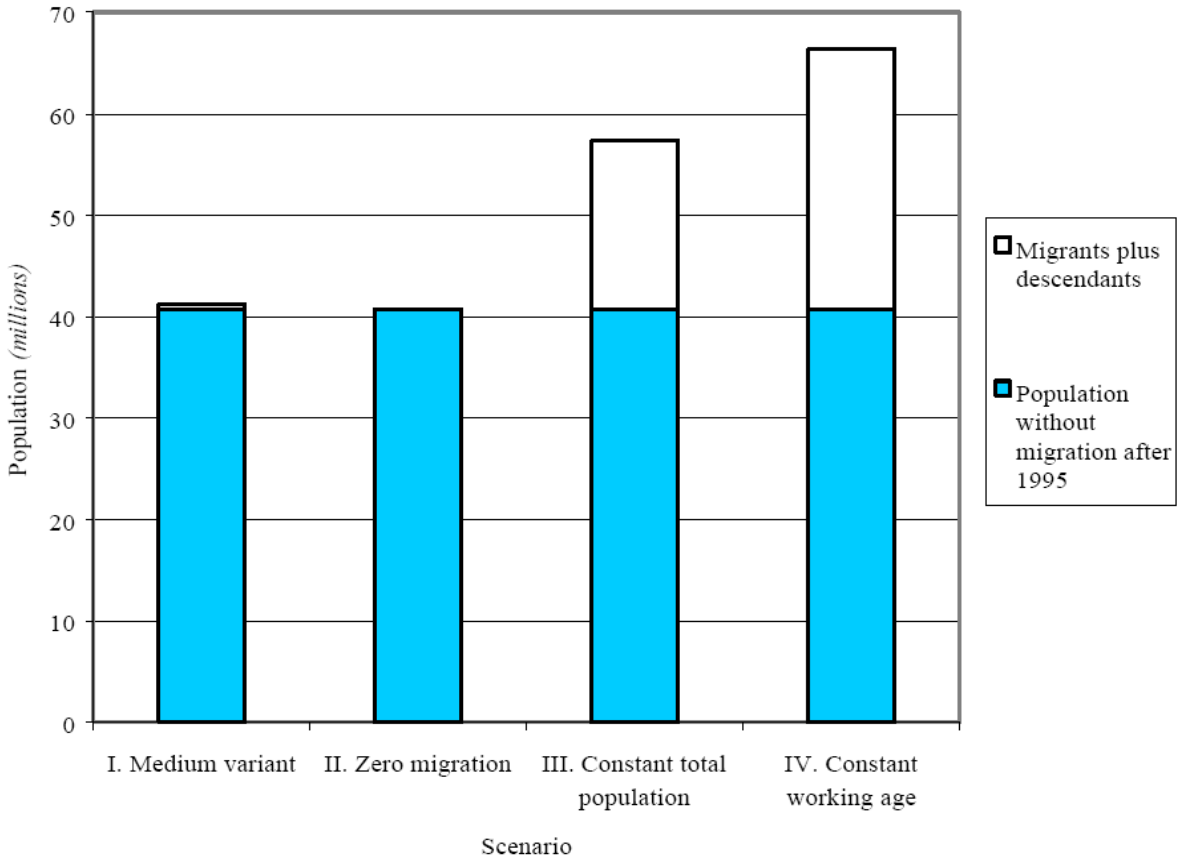
Co-funded by the
Erasmus+ Programme
of the European Union

Population of the European Union (15) in 2050, indicating those who are post-1995 migrants and their descendants, by scenario



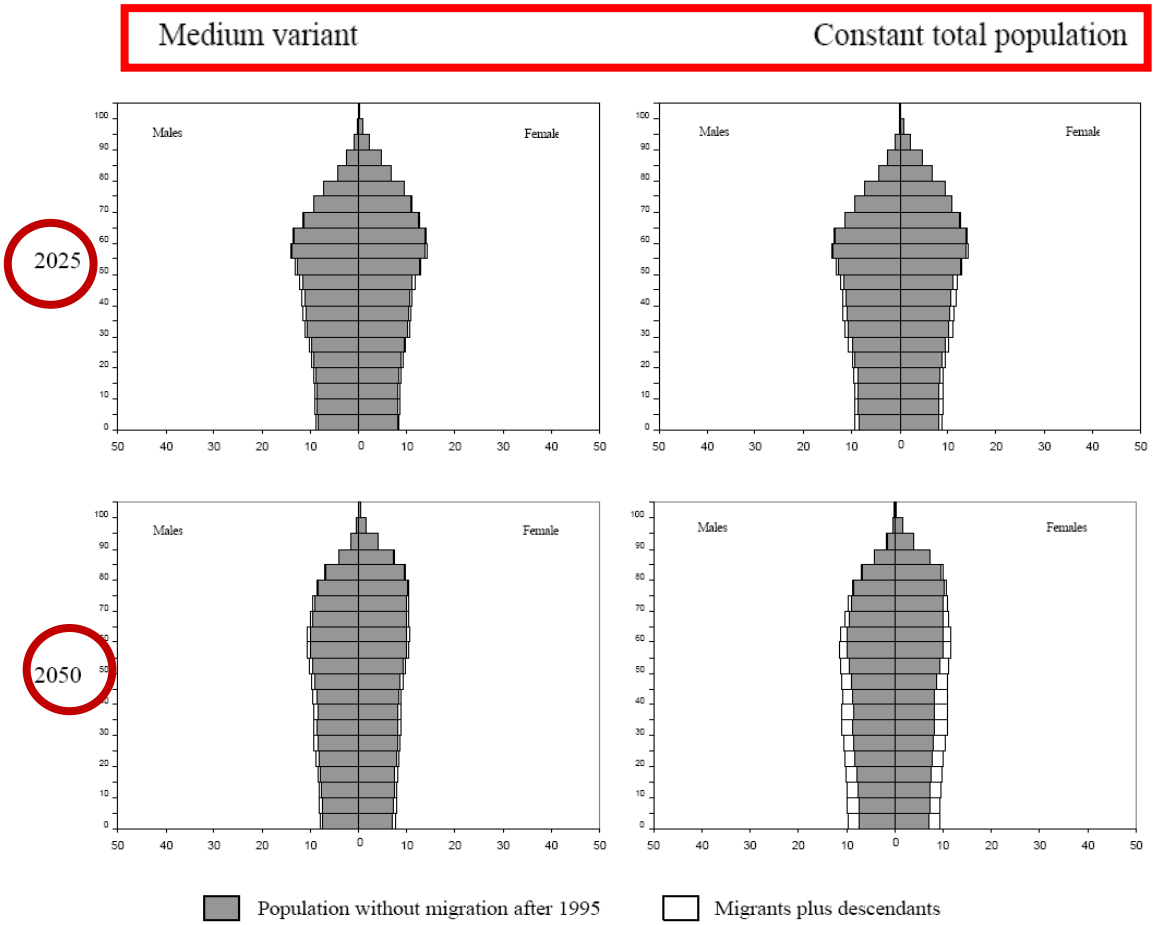
Co-funded by the
Erasmus+ Programme
of the European Union

Population of Italy in 2050, indicating those who are post-1995 migrants and their descendants



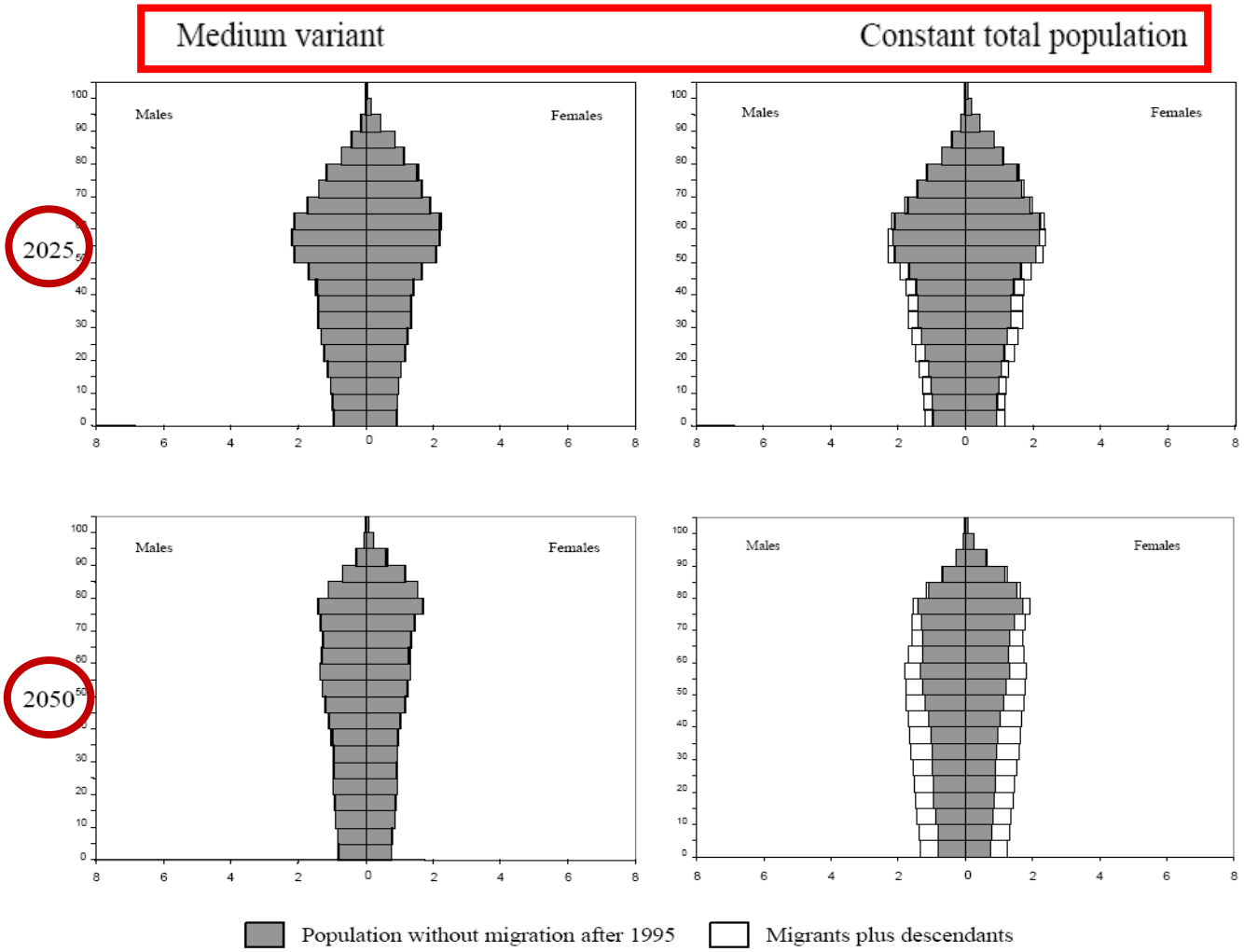
Co-funded by the
Erasmus+ Programme
of the European Union

Age-sex structures by scenario
Europe 15



Co-funded by the
Erasmus+ Programme
of the European Union

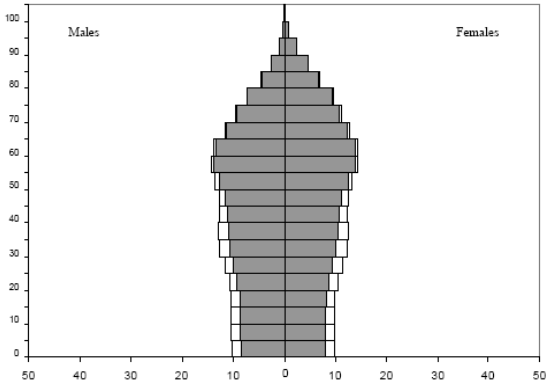
Age-sex structures by scenario
Italy

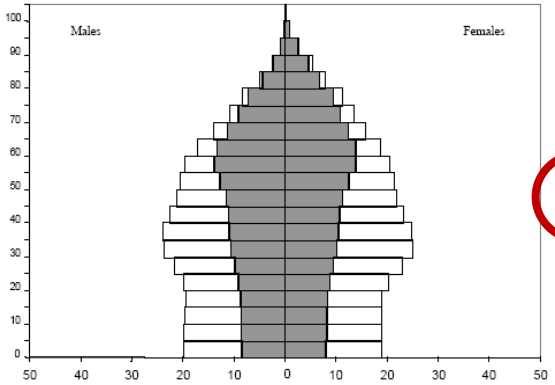


Co-funded by the
Erasmus+ Programme
of the European Union

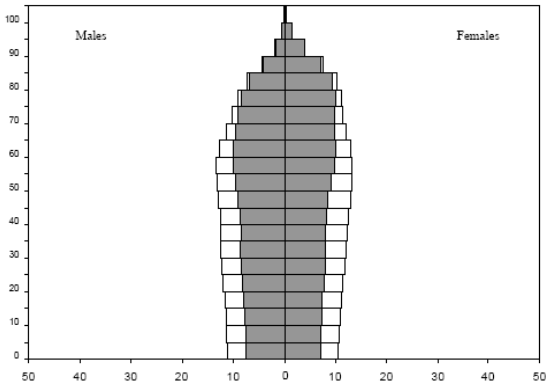
Age-sex structures by scenario
Europe 15

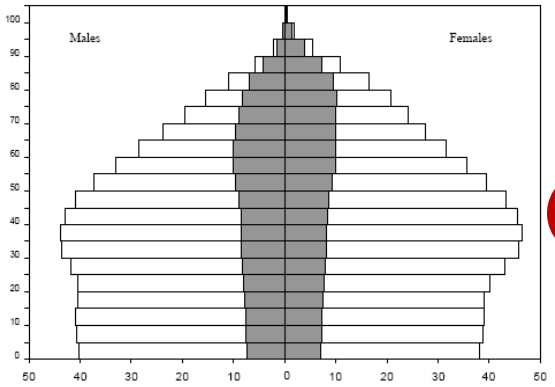
Constant age group 15-64	Constant ratio 15-64/65 years or older





2025



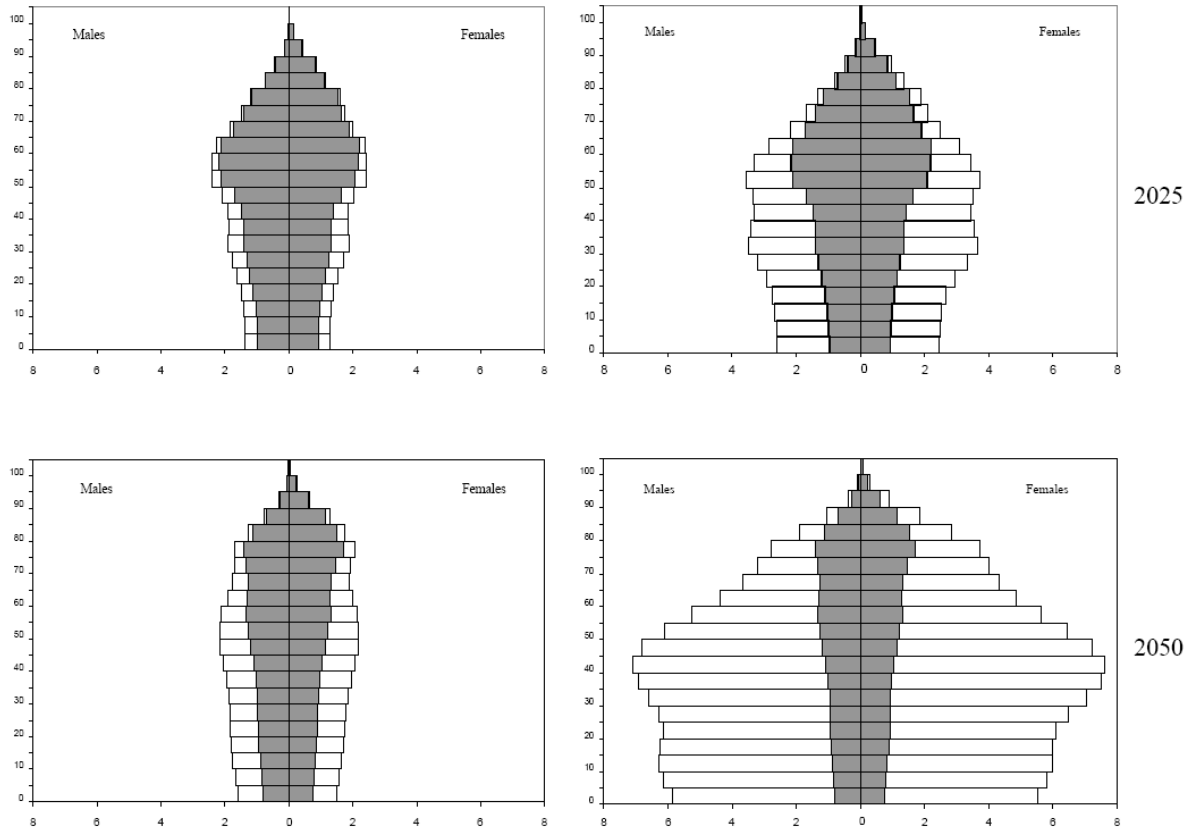


2050

Co-funded by the
Erasmus+ Programme
of the European Union

Age-sex structures by scenario
Italy

Constant age group 15-64	Constant ratio 15-64/65 years or older



Co-funded by the
Erasmus+ Programme
of the European Union

UN Report

- This comprehensive analysis, the first to be made on a common methodology on a fully international basis has attracted unusual attention and provoked much comment in the media.
- Because of this systematic approach, and because of the prestige attaching to the UN Population Division, the report has been widely read and cited.
- Its statistics will be a definitive benchmark for years to come.

A) Critics of too much 'optimism' on immigration as solution

B) Critics of having underestimated other positive consequences of immigration

C) Migration replacement is already here!

Co-funded by the
Erasmus+ Programme
of the European Union

Against..

- the almost universal *impression* conveyed to the public is that the UN has stated the following:
  - (a) that population, workforce numbers and support ratios must be kept at their present levels and therefore
  - (b) that the projected levels of immigration must be encouraged by the countries concerned.

✓The idea is that *"This interpretation of the report has provoked comprehensive public misinformation"*

Co-funded by the
Erasmus+ Programme
of the European Union

Demographers critique

- Alternatives (pensions, retirement and workforce reform, productivity, more substantial changes in fertility) were noted but not evaluated
- The political, social and economic costs of large-scale immigration received no mention.
- The Report's concentration on the demographic abstraction of the 'potential support ratio' without considering equally or more important non demographic components of real dependency levels in real societies, has been criticised as 'demographism' (Tarmann 2000).

Co-funded by the
Erasmus+ Programme
of the European Union

(A) Coleman's conclusions on UK example

- The answers to the two questions posed in the UN Report can immigration solve problems of :
  1. population decline
  2. population ageing

They are respectively:

1. "yes, if you really think you want to"
2. "no, except at rates of immigration so high that they would generate economically and environmentally unsustainable population growth rates and permanently and radically change the cultural and ethnic composition of the host population: 'replacement migration', indeed"

Co-funded by the
Erasmus+ Programme
of the European Union

[Incidentally about 1) Reconstructions of the population effects of past immigration]

- Reconstruction of French population history over the last century (to 1986)
  - showed that the direct and indirect effects of immigration over that time had added 10.2 million people to the French population, of whom 3.9 million were immigrants born outside France
  - Without it, France would have lacked one in five of its births and its 1986 population would have been 45.1 million instead of 55.3
  - In particular, immigration accounted for about 40 % of population increase since the Second World War.
- Substantial growth in the UK population between 1951 and 1995
  - as a result of the direct and indirect effects of migration – by 2.89 million according to the 'modified fertility' scenario
  - Migration accounted for 30 percent of total population growth over the period

Co-funded by the
Erasmus+ Programme
of the European Union

At EU level consensus on:

- Well-managed migration inflows could provide a positive contribution to employment and economic growth if we manage to successfully promote the integration of immigrants in our societies.
- ✓However, **even doubling present levels of immigration flows could not offset the implications of ageing in the labour market and pensions.**
- ✓Pension systems are not very sensitive to immigration increases. Simulations confirm that even doubling or tripling the levels of annual immigration flows provided by the baseline demographic scenario for the next 40 years could not compensate for the growth of the economic dependency ratio.
- ✓We will still need to focus our efforts on employment policies and pensions reforms, if we are to achieve sustainable labour markets and pensions systems.
- ✓*"immigration can contribute to filling certain specific gaps on the European labour market, but it can in no way stop or reverse the process of significant population ageing in Europe"* *2002 Social Situation report*

Co-funded by the
Erasmus+ Programme
of the European Union

The hesitancy of policy makers with regard to immigration as an answer to demographic challenges is connected to three main aspects:

- **the composition of the immigrant flows involved;**
- To maximise the positive effects of immigration for pension and health care systems, the desired immigrants would be as young as possible;
- **the social sustainability of large scale immigration;**
- **the durability of immigration's effect on ageing;**

Replacement migration is not a long-term solution to population ageing, because migrants also age.

While increased immigration would certainly have an **immediate impact** on the working-age population, the long-term effects are less certain

Co-funded by the
Erasmus+ Programme
of the European Union

Large consensus

Forecasting international migration is a very difficult task, due to the high level of uncertainty associated with this phenomenon.

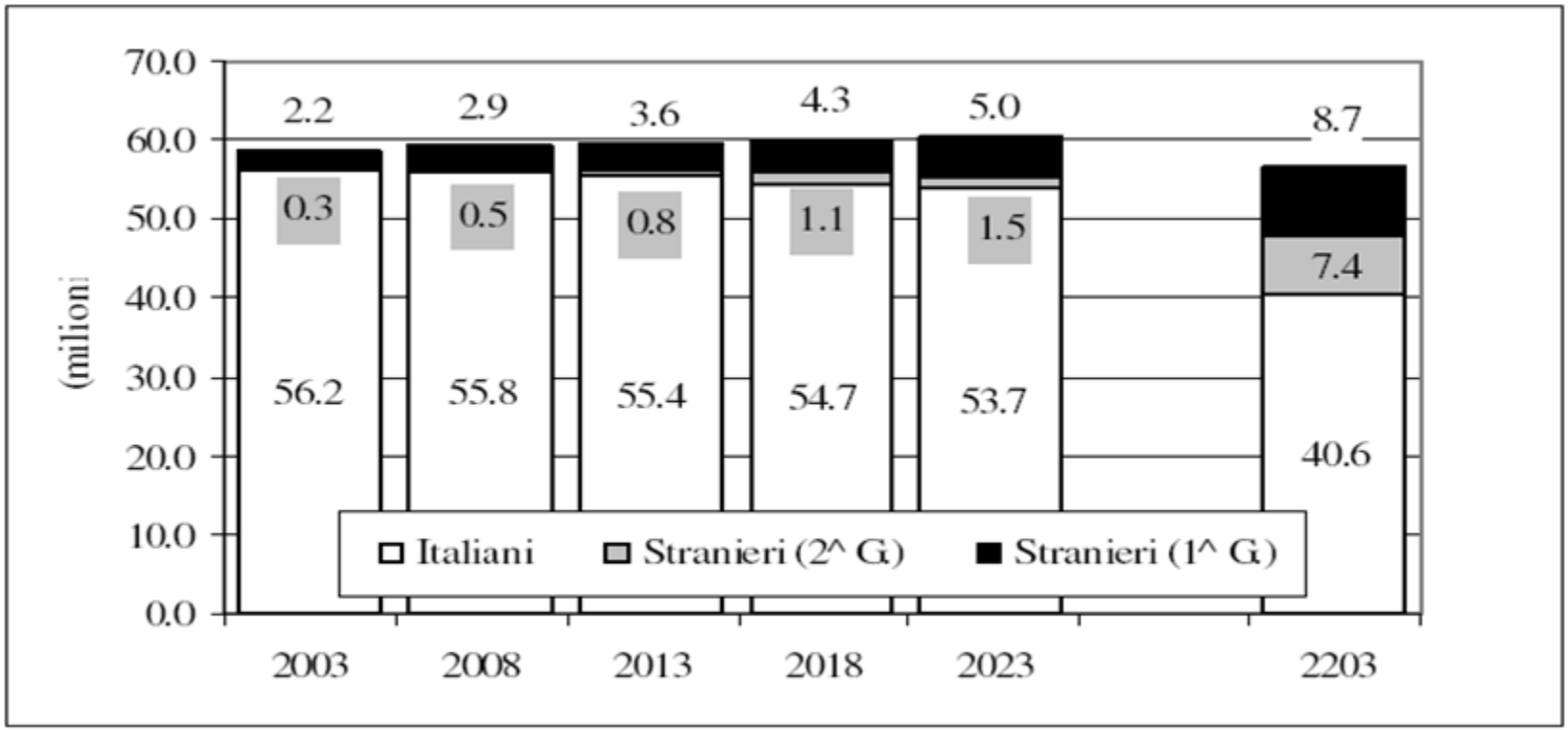
- The results of the forecasts are in many cases uncertain, as migration is highly sensitive to two unpredictable factors:
- **migration policies**
- **political developments**,

Quantification of the knowledge-based scenarios, applying a methodology widely used in demographic forecasting, in order to accommodate the possible impact of economic factors and migration policies.

→ **NO consideration the consequences of possible future political disruptions**

Co-funded by the
Erasmus+ Programme
of the European Union

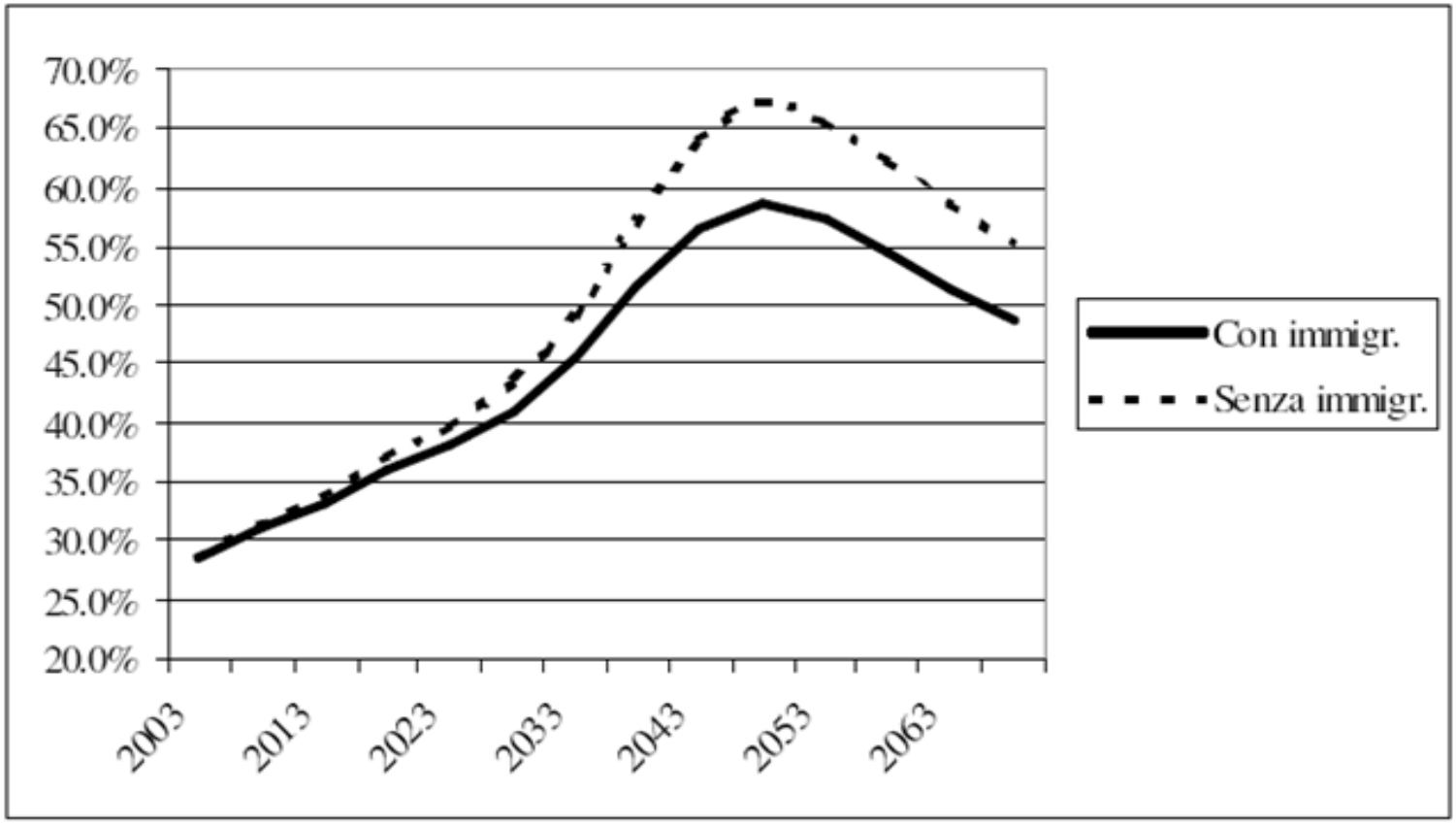
Forecast of Letizia Mencarini



Fonte: Previsioni dell'autore su dati Istat (2003) e Caritas (2003).

Co-funded by the
Erasmus+ Programme
of the European Union

Italian population 65+ /20-64 years old in the next 70 years



Fonte: Previsioni dell'autore su dati Istat (2003) e Caritas (2003).

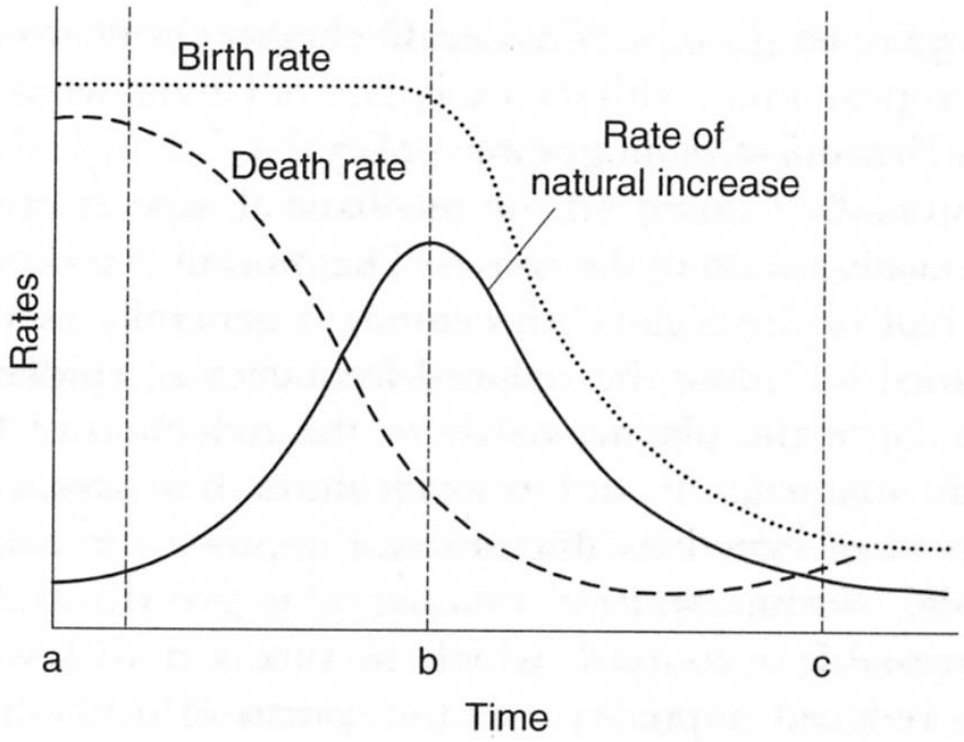
Co-funded by the
Erasmus+ Programme
of the European Union

Demographic driver of migration in the origin countries

Migration and demographic transition

Co-funded by the
Erasmus+ Programme
of the European Union

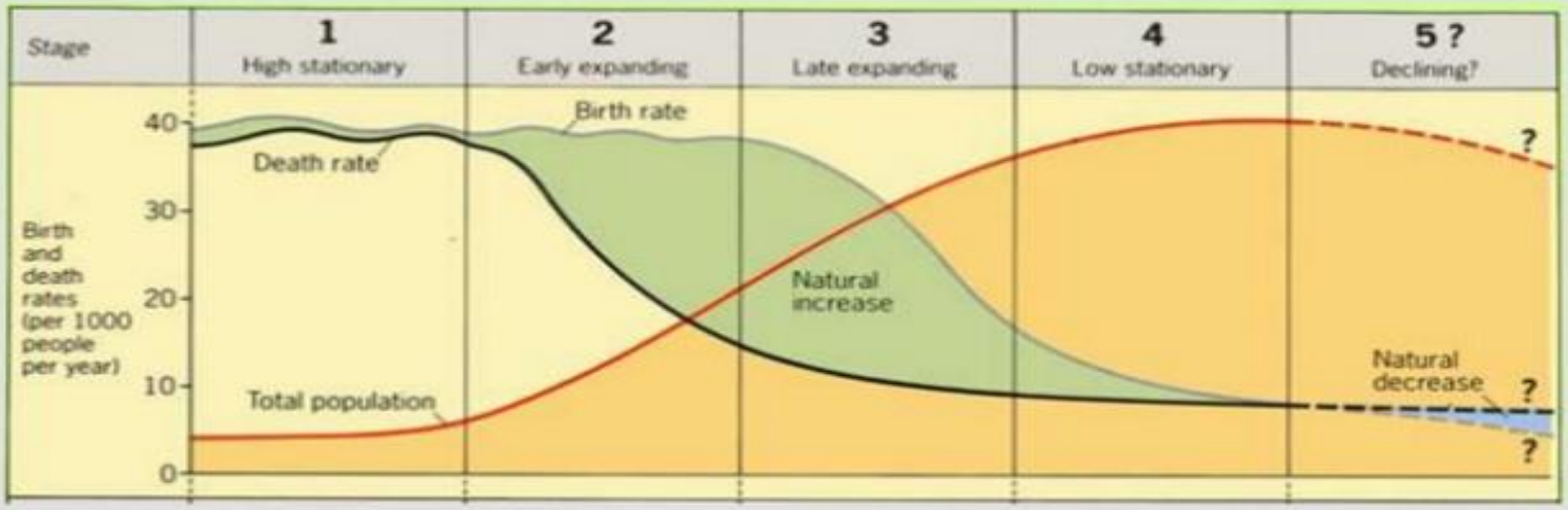
Demographic transition model



a = beginning of the transition
b = greatest difference between birth and death rates
c = end of the transition

Co-funded by the
Erasmus+ Programme
of the European Union

DEMOGRAPHIC TRANSITION MODEL



DTM shows **population change over time**,

how birth rate and death rate affect the total population of a country

Co-funded by the
Erasmus+ Programme
of the European Union

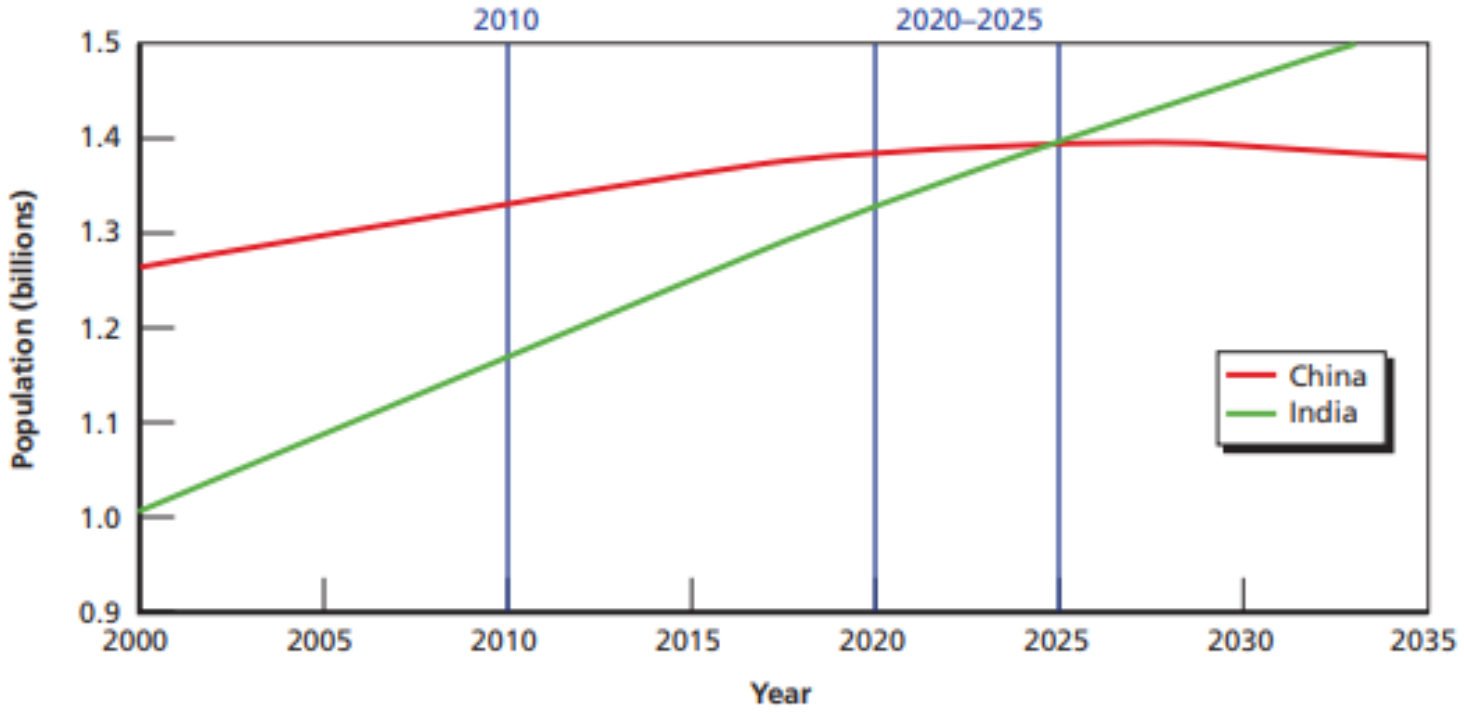
Beginning, end, duration, and "multiplier" of the demographic transition

Country	*Beginning and end of the transition*	*Duration in years*	*Multiplier*
Sweden	1810–1960	150	3.83
Germany	1876–1965	90	2.11
Italy	1876–1965	90	2.26
USSR	1896–1965	70	2.05
France	1785–1970	185	1.62
China	1930–2000	70	2.46
Taiwan	1920–1990	70	4.35
Mexico	1920–2000	80	7.02

Source: J.-C. Chesnais, *La transition démographique* (PUF, Paris, 1986), pp. 294, 301.

Co-funded by the
Erasmus+ Programme
of the European Union

Figure 2.1
Total Population Sizes, and China and India, 2000–2035

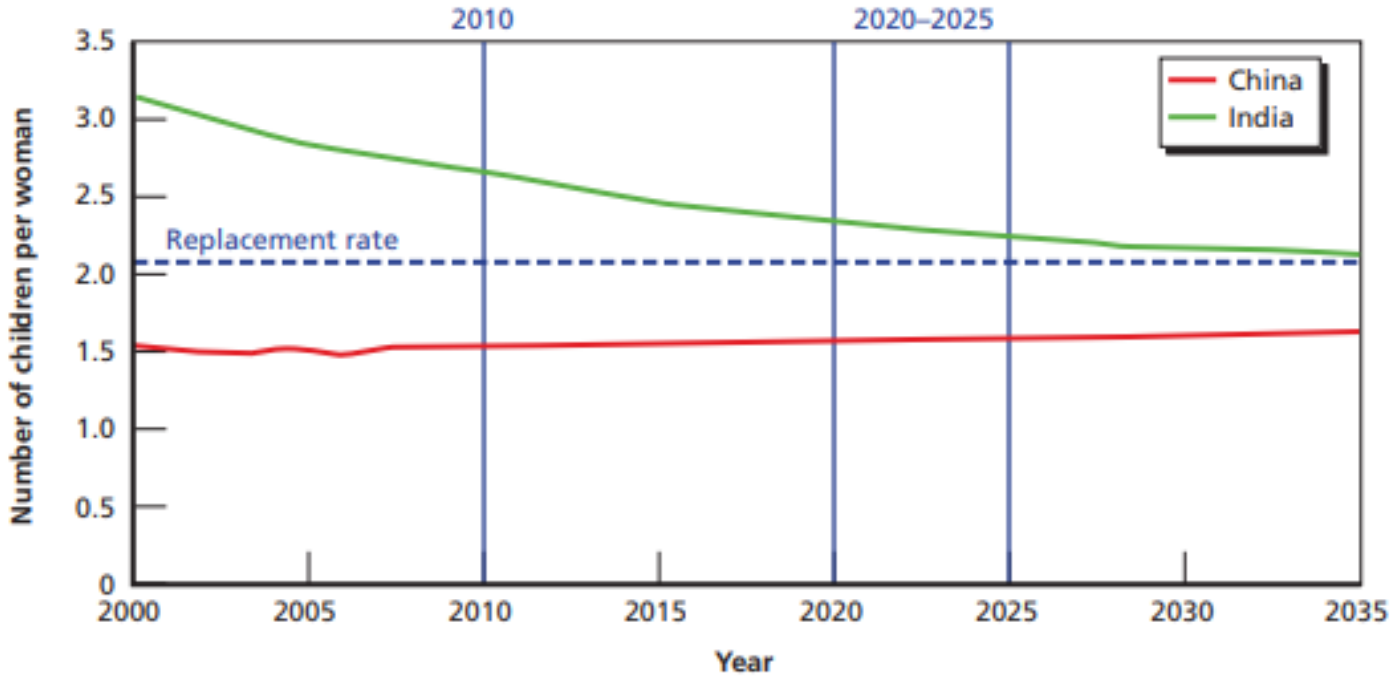


SOURCE: U.S. Census Bureau, 2010.

RAND MG1009-2.1

Co-funded by the
Erasmus+ Programme
of the European Union

Figure 2.3
Total Fertility Rates, China and India, 2000–2035



SOURCE: U.S. Census Bureau, 2010.

RAND MG1009-2.3

Co-funded by the
Erasmus+ Programme
of the European Union

The massive European emigration

At the end of 18th century more than 8 million people of Europe extraction about equally divided inhabited the 2 halves of the American continent.

Over 3 centuries Europe had by means of Iberian and British imperialism established the political, economic, and demographic foundations for coming mass migration

Causes of migration:

- Economic: The Industrial revolution and technological progress increased the productivity and so rendered masses of workers superfluous, especially in rural areas
- Demographic: The transition entailed a *large demographic "multiplier"* speeding up population growth and worsening the problems created by economic change

The **availability of land and space** in North and South America (and Oceania) combined with **labour demand** created conditions for massive migration

Co-funded by the
Erasmus+ Programme
of the European Union

Estimates for European trans-oceanic migration between 1846-1932

- From the major countries of Departure:
  - 18 million UK/Ireland
  - 11.1 Italy
  - 6.5 Spain/Portugal
  - 5.2 Austria/Hungary
  - 5 Germany
  - 3 Poland/Russia
  - 2 Sweden/Norway

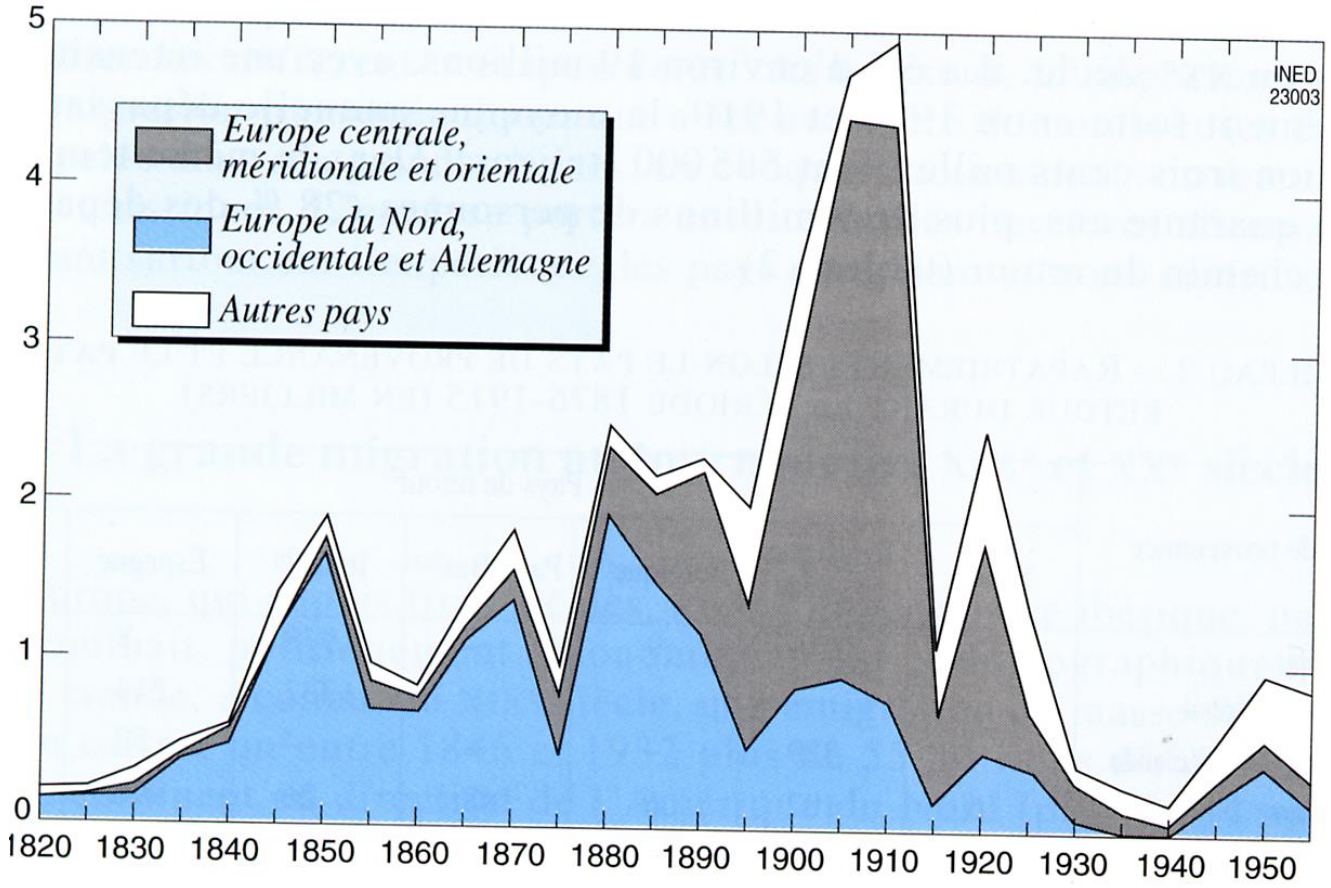
- Destinations:
  - 34.2 million US
    - (US restrictive laws 1921-4)
  - 7.1 Argentina/Uruguay
  - 5.2 Canada
  - 4.4 Brazil
  - 3.5 Australia/New Zeland
  - 1 Cuba

In the first 15 years of 1900 **annual rate of European emigration = >3 per thousand**

= 1/3 pop growth

Co-funded by the
Erasmus+ Programme
of the European Union

"Old" and "new" migration to United States



Co-funded by the
Erasmus+ Programme
of the European Union

Importance of emigration for European demographic system

Italian example:

- Between 1861-1961:

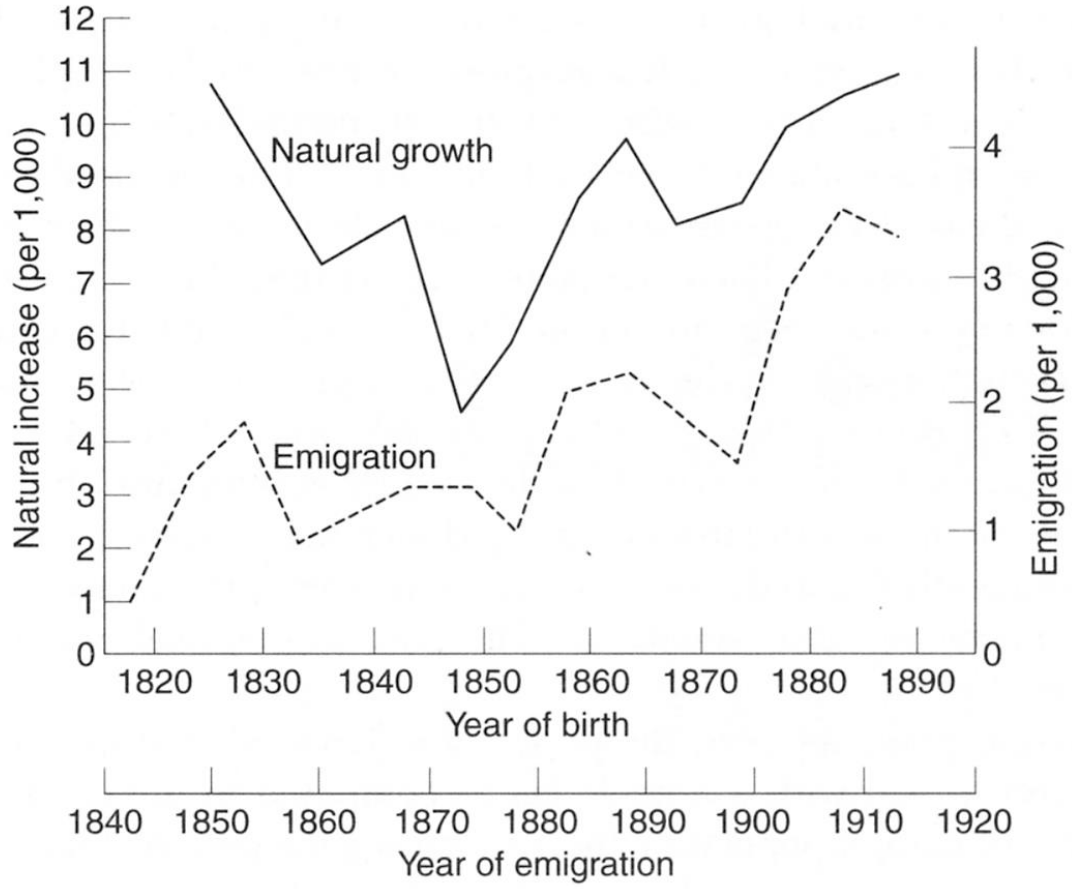
→ 8 million of net Italian population loss due to emigration (If that emigrants had remained in Italy and had grown at the same rate as that of the Italian population)

- It would in 1981 have numbered 14 million

→ about 25% of the national population at that time

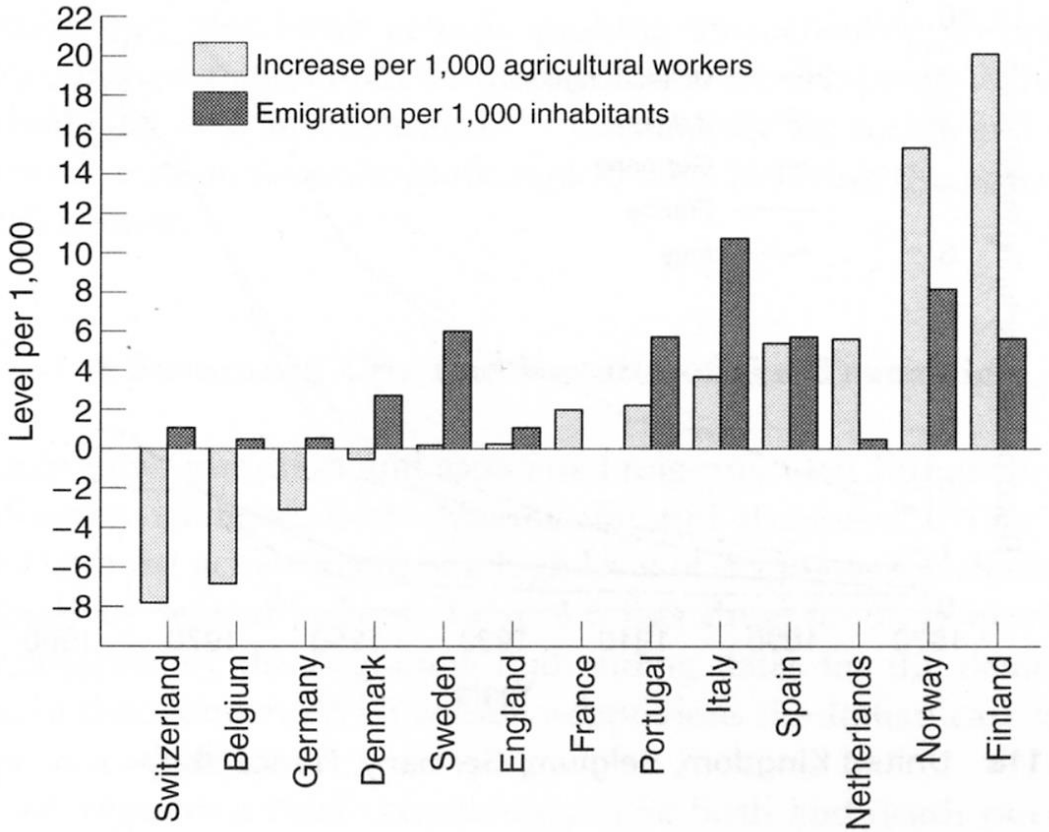
Co-funded by the
Erasmus+ Programme
of the European Union

Emigration and natural growth for continental Europe



Co-funded by the
Erasmus+ Programme
of the European Union

Increase of agricultural employment (1870-1910) and emigration (1900-10)



Co-funded by the
Erasmus+ Programme
of the European Union

Hypotheses about migration and the demographic

Friedlander (1969) examined the inter-relationships between migration, fertility and population growth

→ HP: timing of fertility decline depended on whether there were opportunities for internal/external migration (The amount of growth from natural increase occurring in European countries during the transition is related to opportunities for migration)

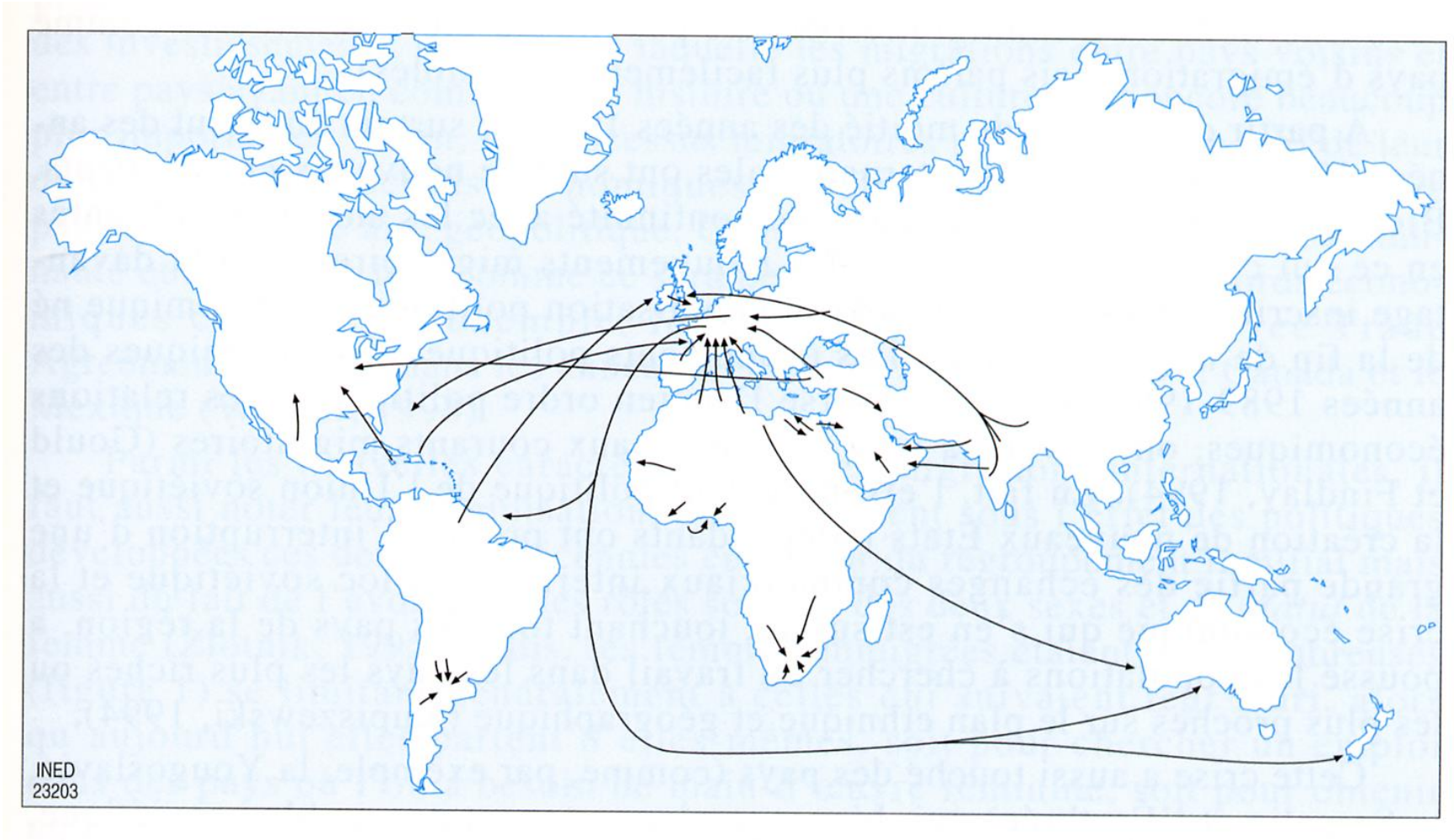
Zelinsky (1971): There are patterned changes through time in rats of different type of popualtion movement

→ HP: These changes are paralleling the stages of the demographic transition (no causal links)

→ **Mobility transition**: migration and mobility are mechanism and symptoms of changes taking place in societies

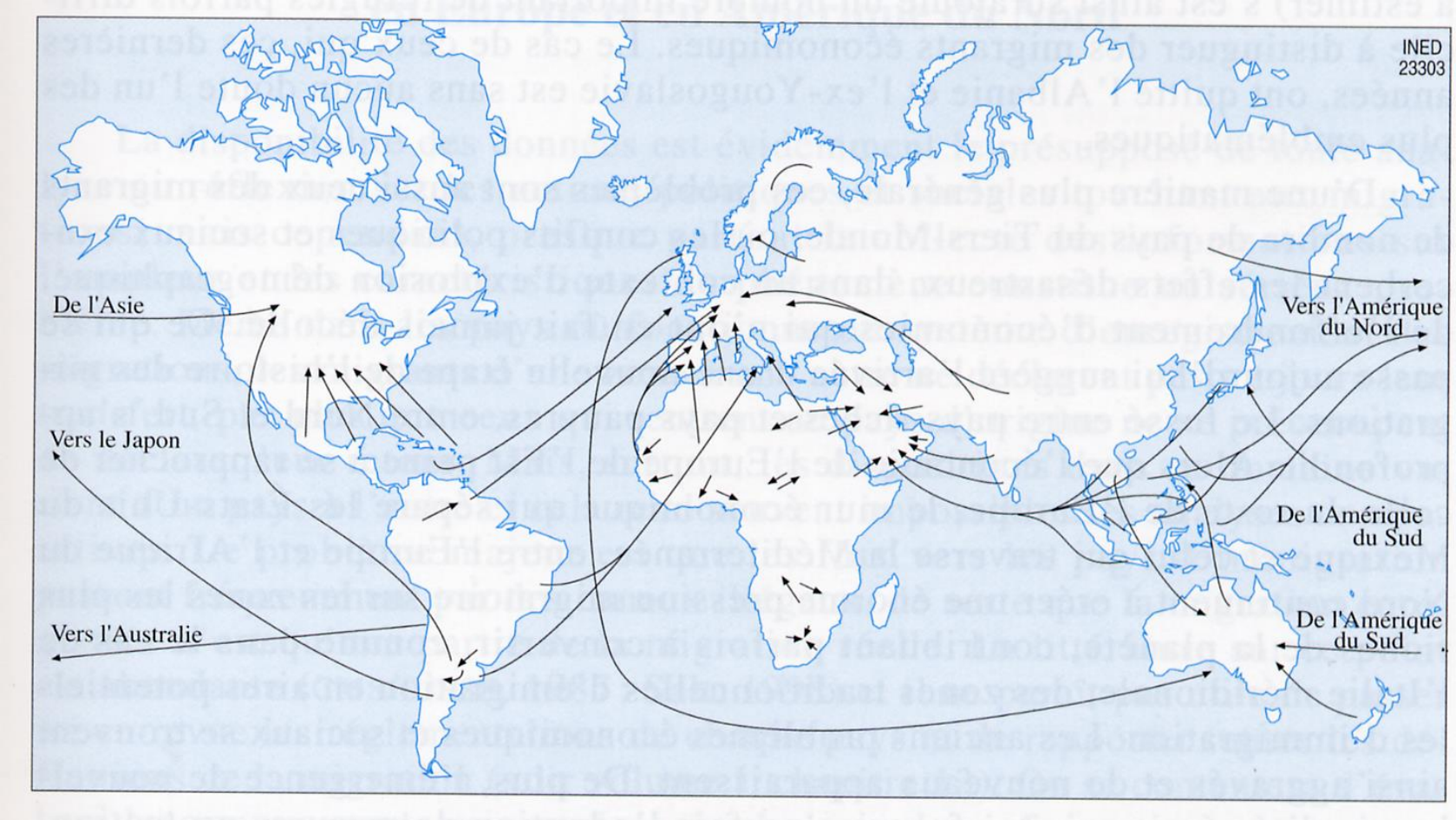
Co-funded by the
Erasmus+ Programme
of the European Union

Direction of world migration 1945-73



Co-funded by the
Erasmus+ Programme
of the European Union

Direction of world migration post-1973



Co-funded by the
Erasmus+ Programme
of the European Union

Hints for a Bibliography

- Friedlander D. (1969) Demographic response and population change, *Demography, 6, 359-381.*
- Zelinski W. (1971) The hypothesis of the mobility transition, *Geographical Review, 219-249.*
- Zelinski W. (1979) The demographic transition:changing patterns of migration, in La science de la population au service de l'homme, IUESP, Liege.
- Livi Bacci M (2000) A concise history of world population, 3rd ed, Blackwell. (Chapter 4)

Co-funded by the
Erasmus+ Programme
of the European Union

The Relationship between Economic Development and Population Growth Rate for Developing Nations

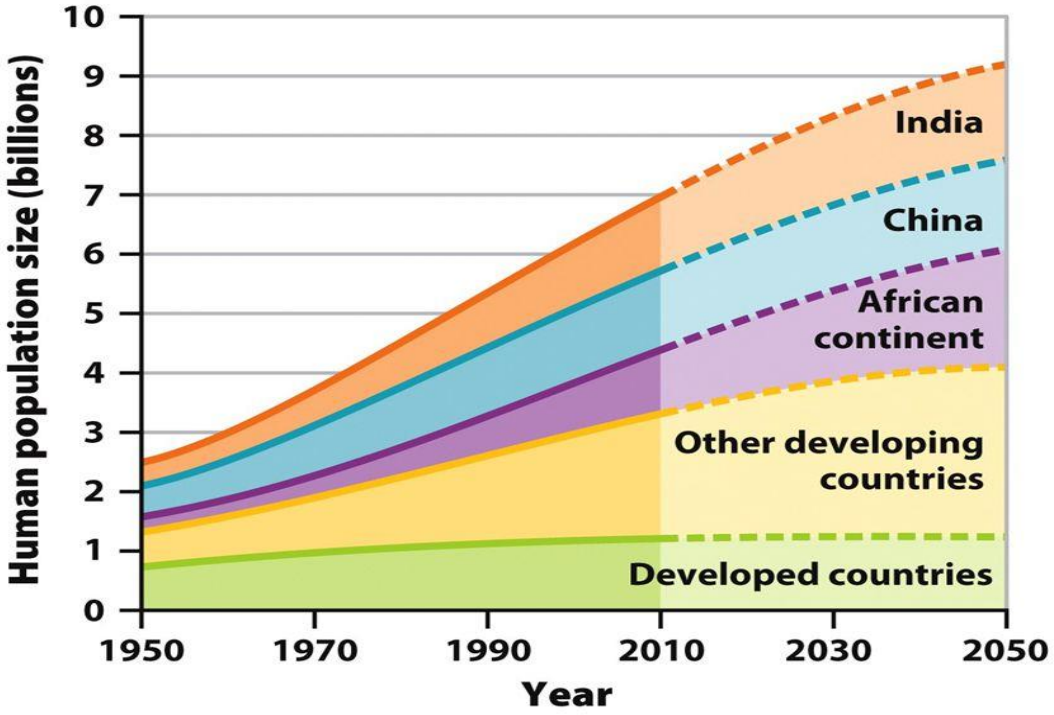
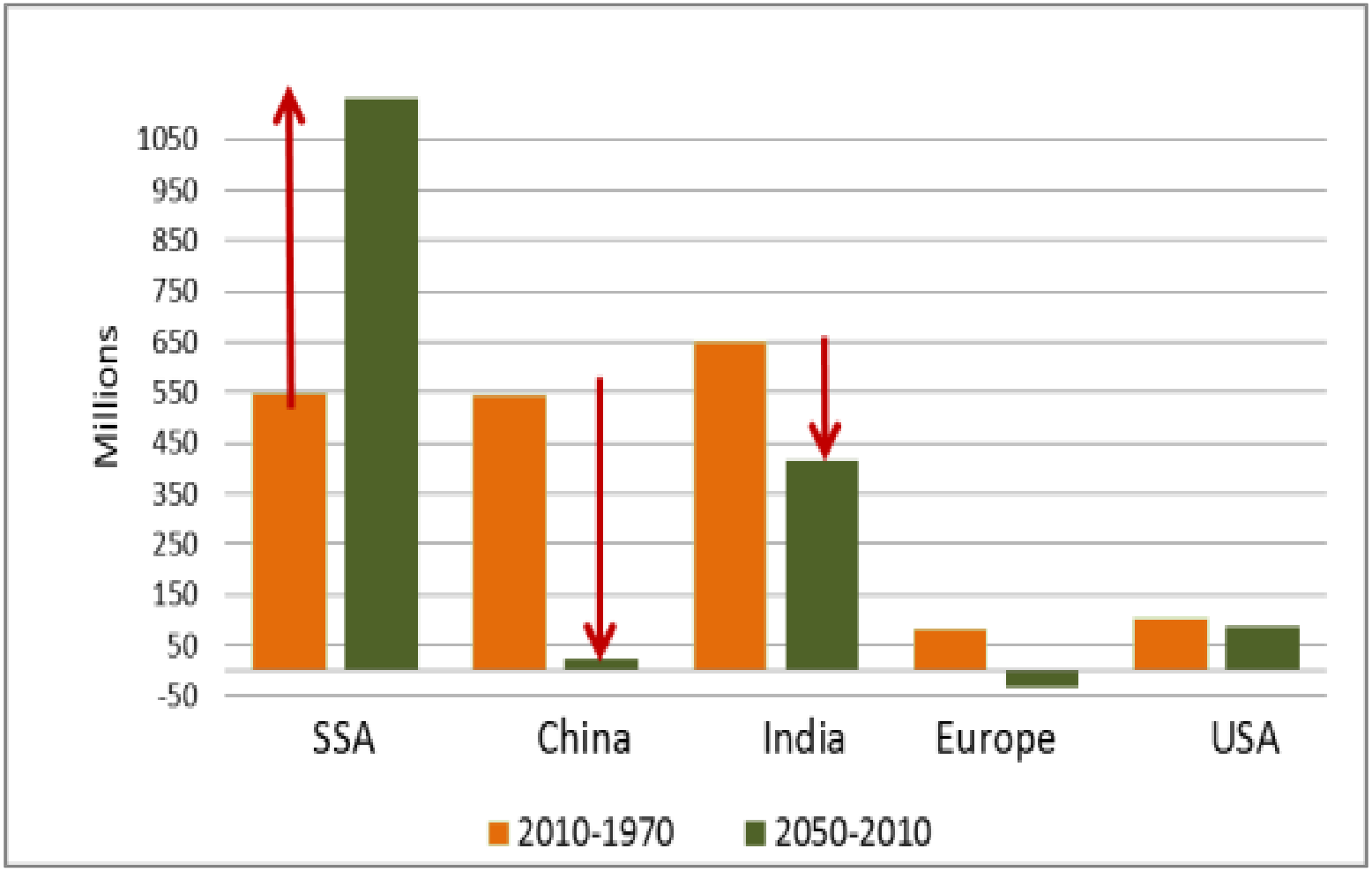


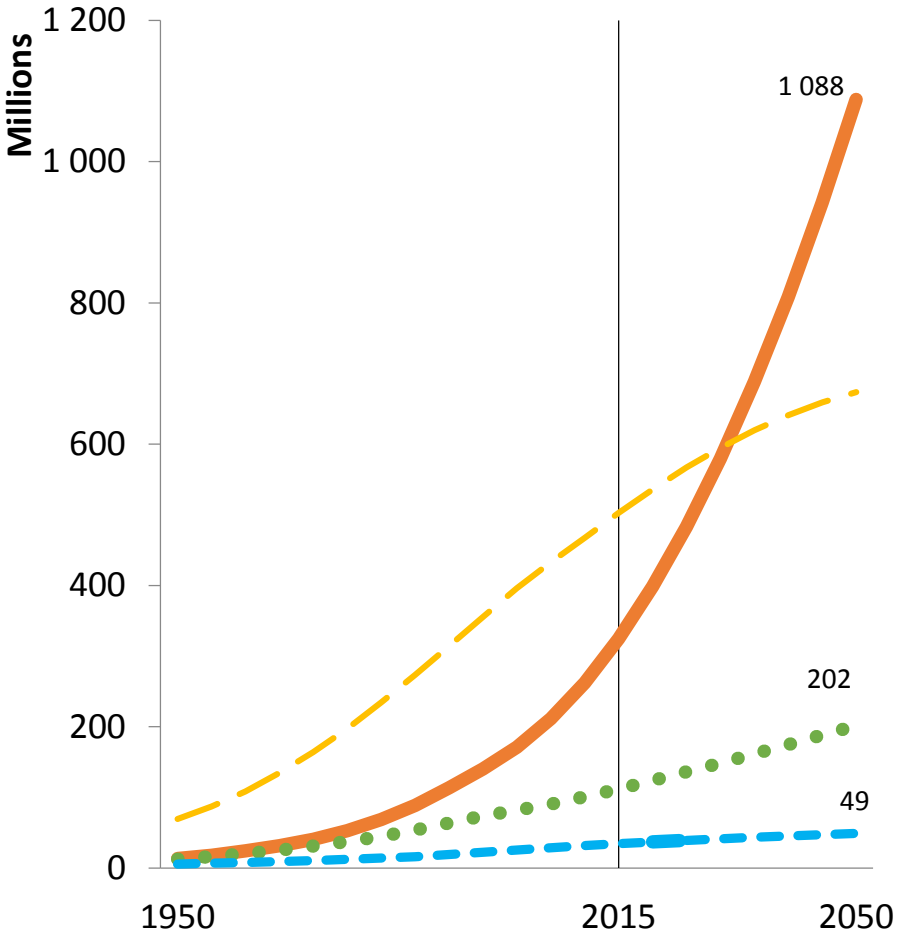
Figure 7.14
Environmental Science

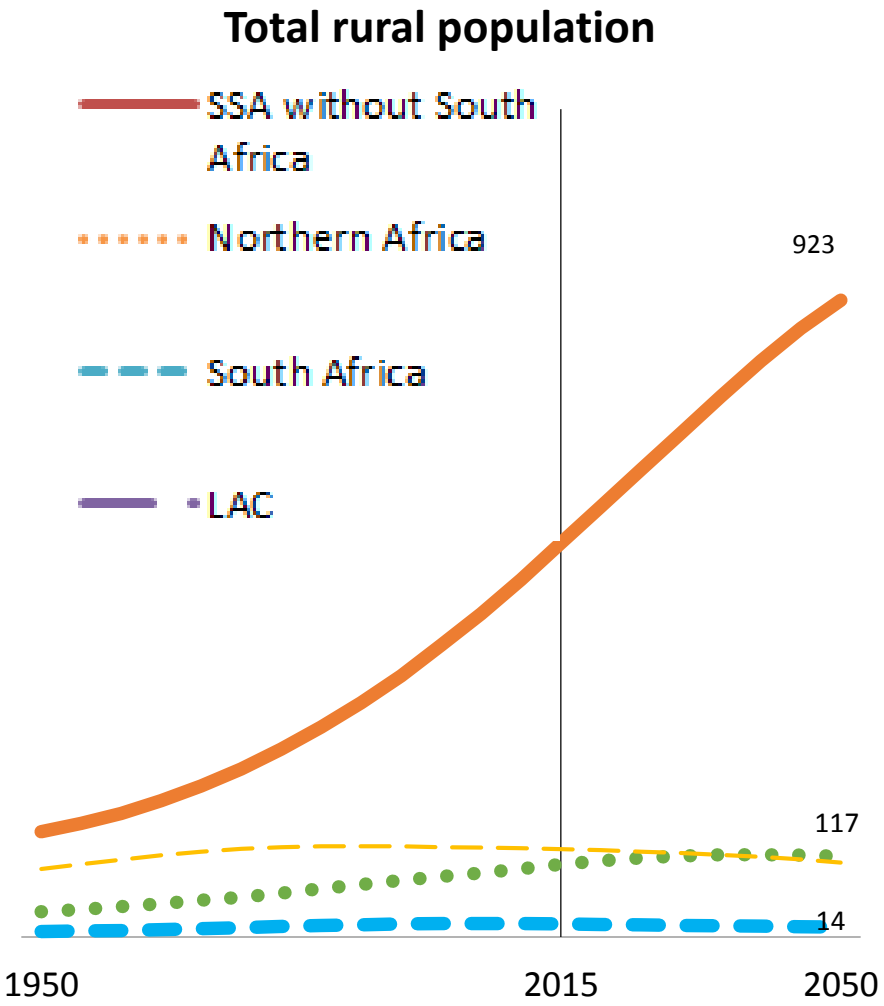
Co-funded by the
Erasmus+ Programme
of the European Union



Co-funded by the
Erasmus+ Programme
of the European Union

Urban and rural population growth





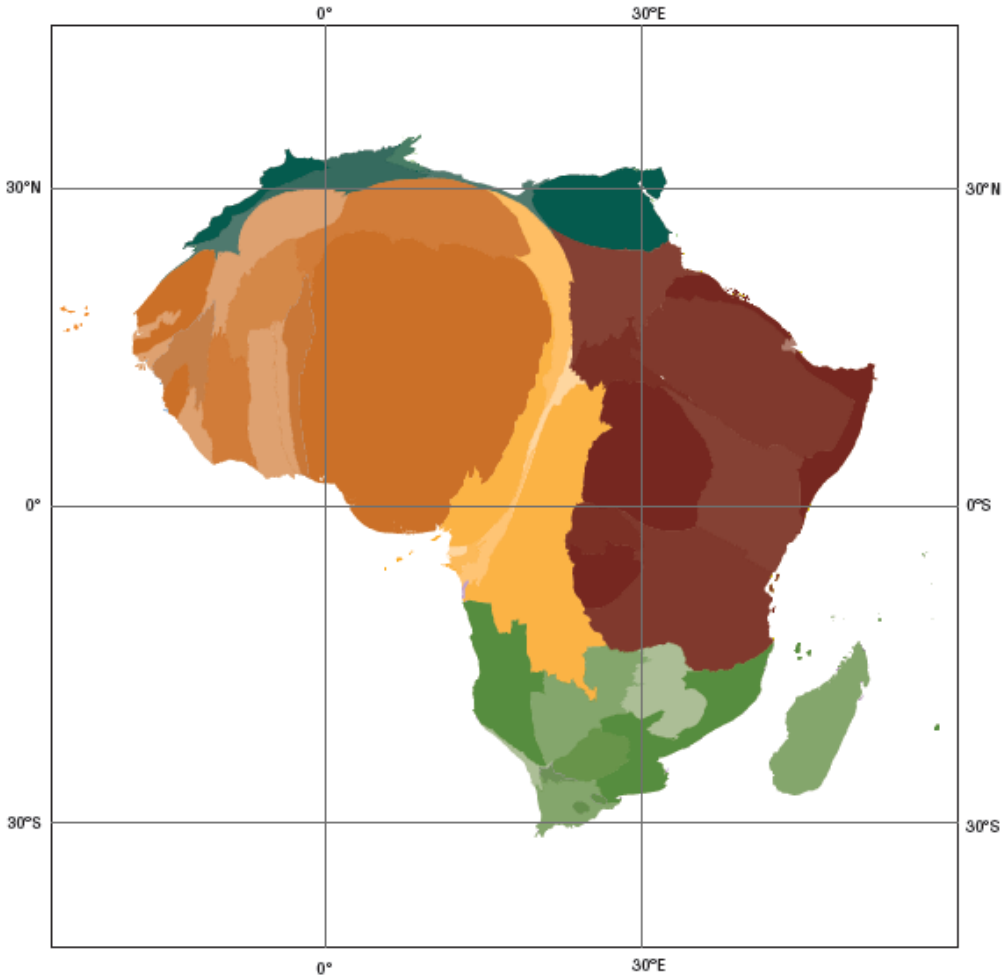
Source: WUP 2014, authors' calculations

Co-funded by the
Erasmus+ Programme
of the European Union

Africa's population growth: 2015 to 2050

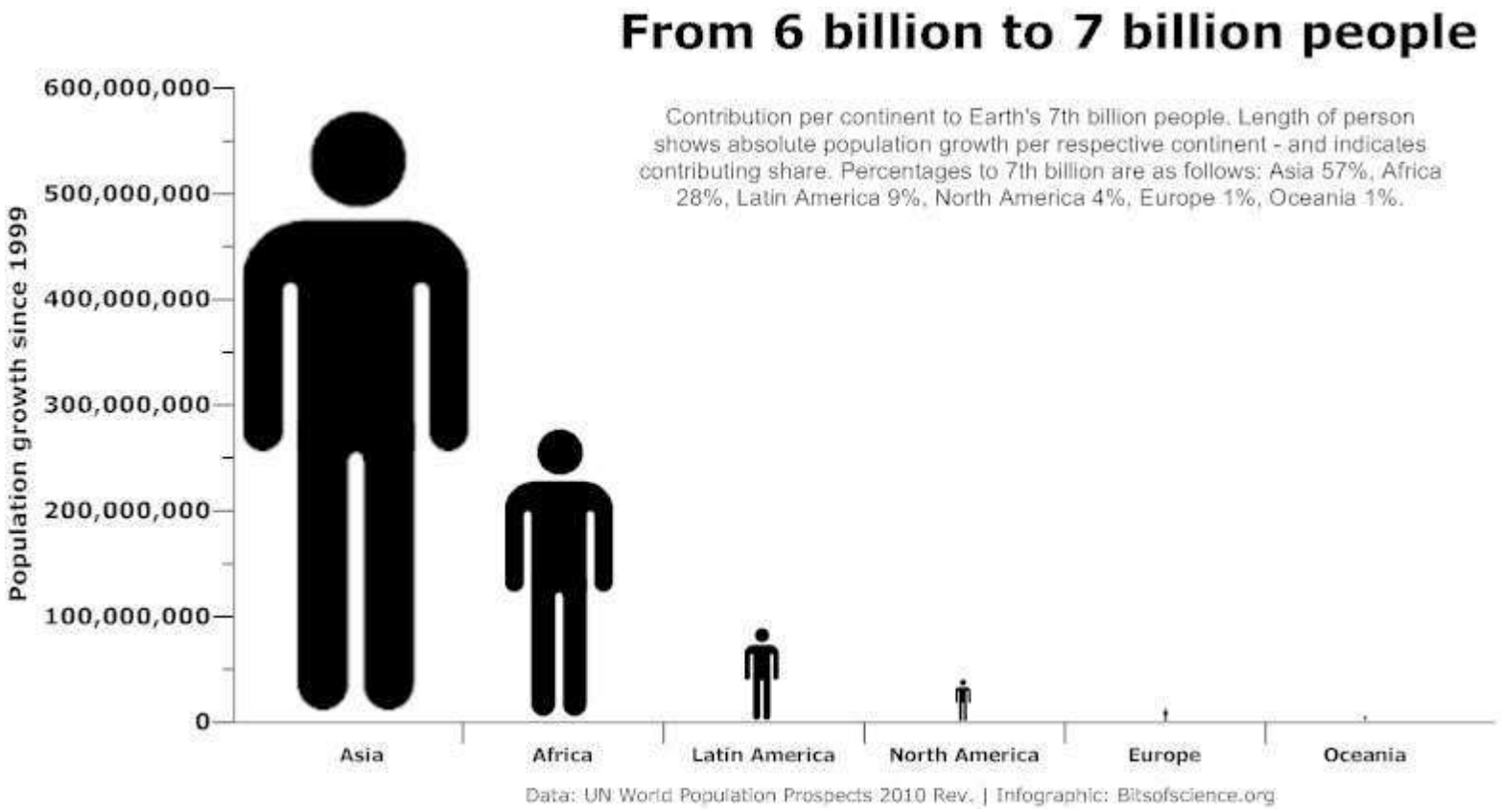
Between 2015 and 2050, population in

- West Africa will grow by 133% (465 million)
- East Africa will grow by 120% (475 million°



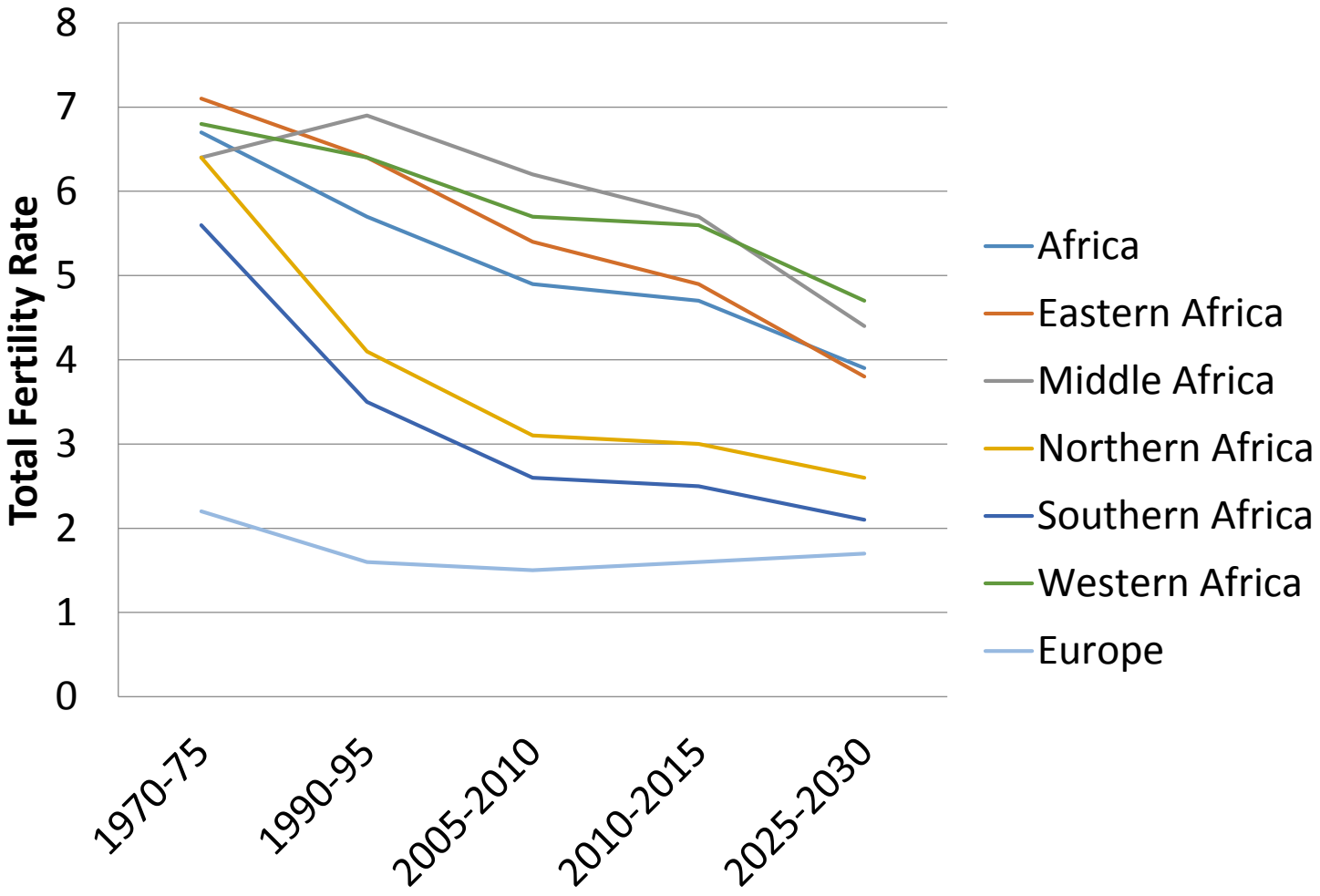
Source: World Population Prospects, 2012
Medium Fertility Scenario
Cirad Cartography Unit

Co-funded by the
Erasmus+ Programme
of the European Union



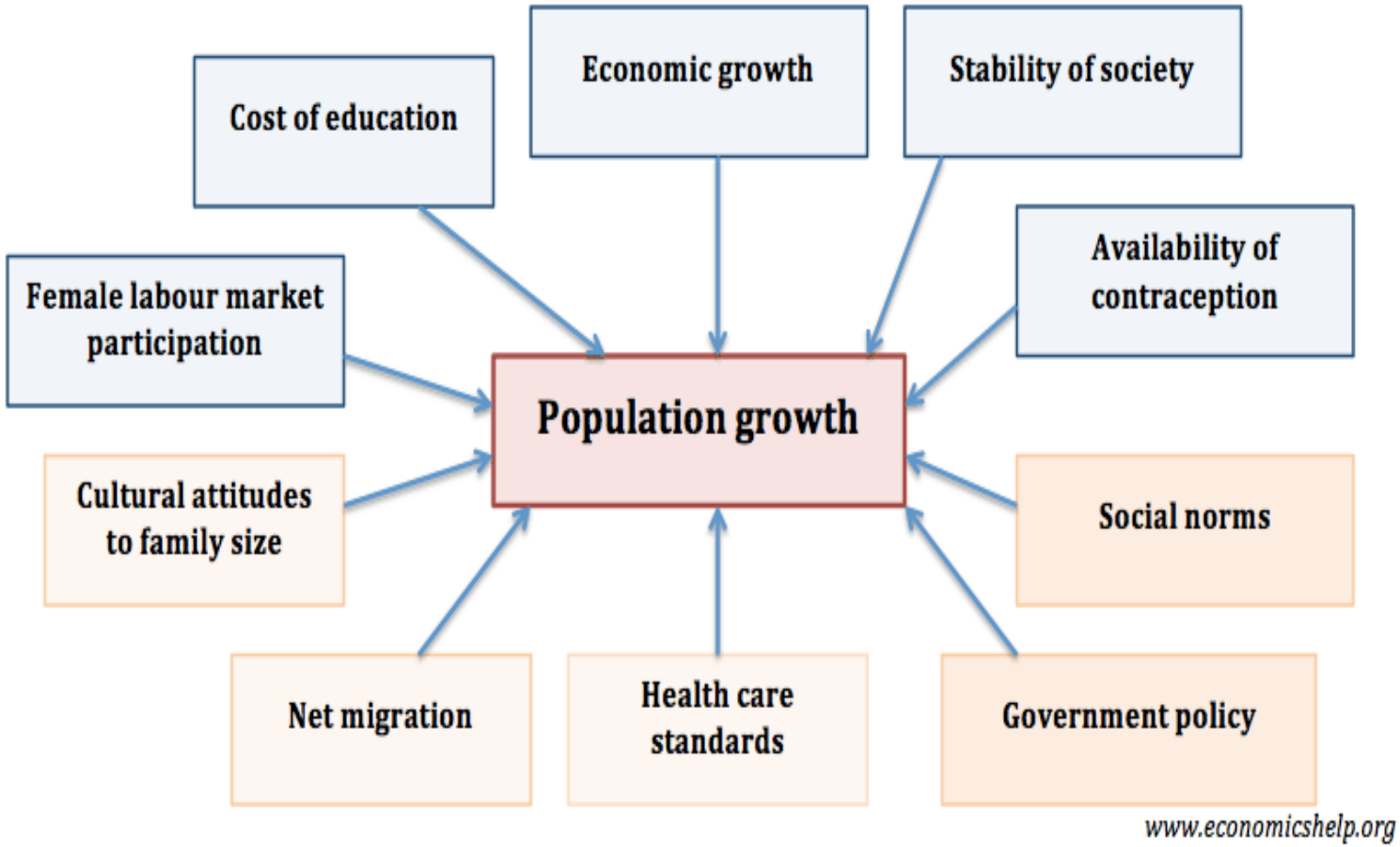
Co-funded by the
Erasmus+ Programme
of the European Union

Trends in the Total Fertility Rate, UN Projections



Co-funded by the
Erasmus+ Programme
of the European Union

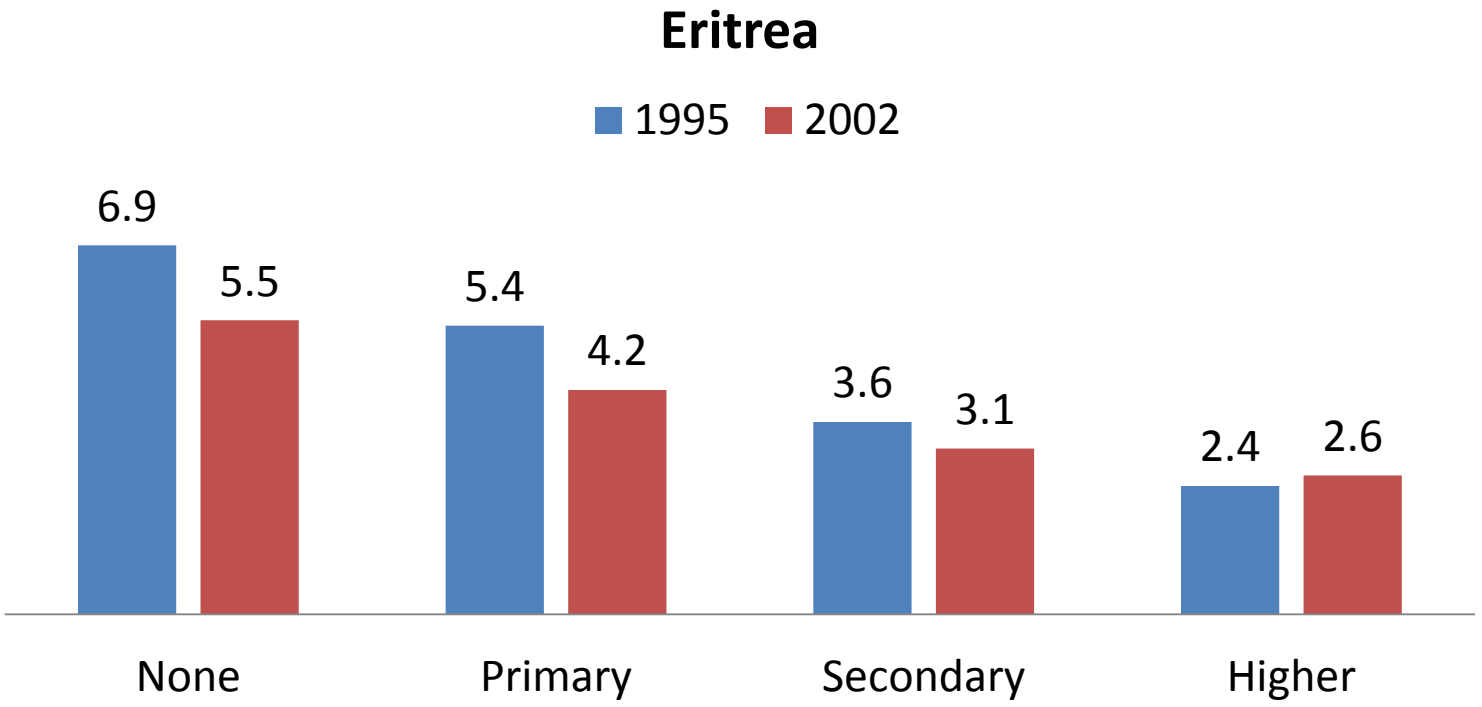
Factors influencing Population growth



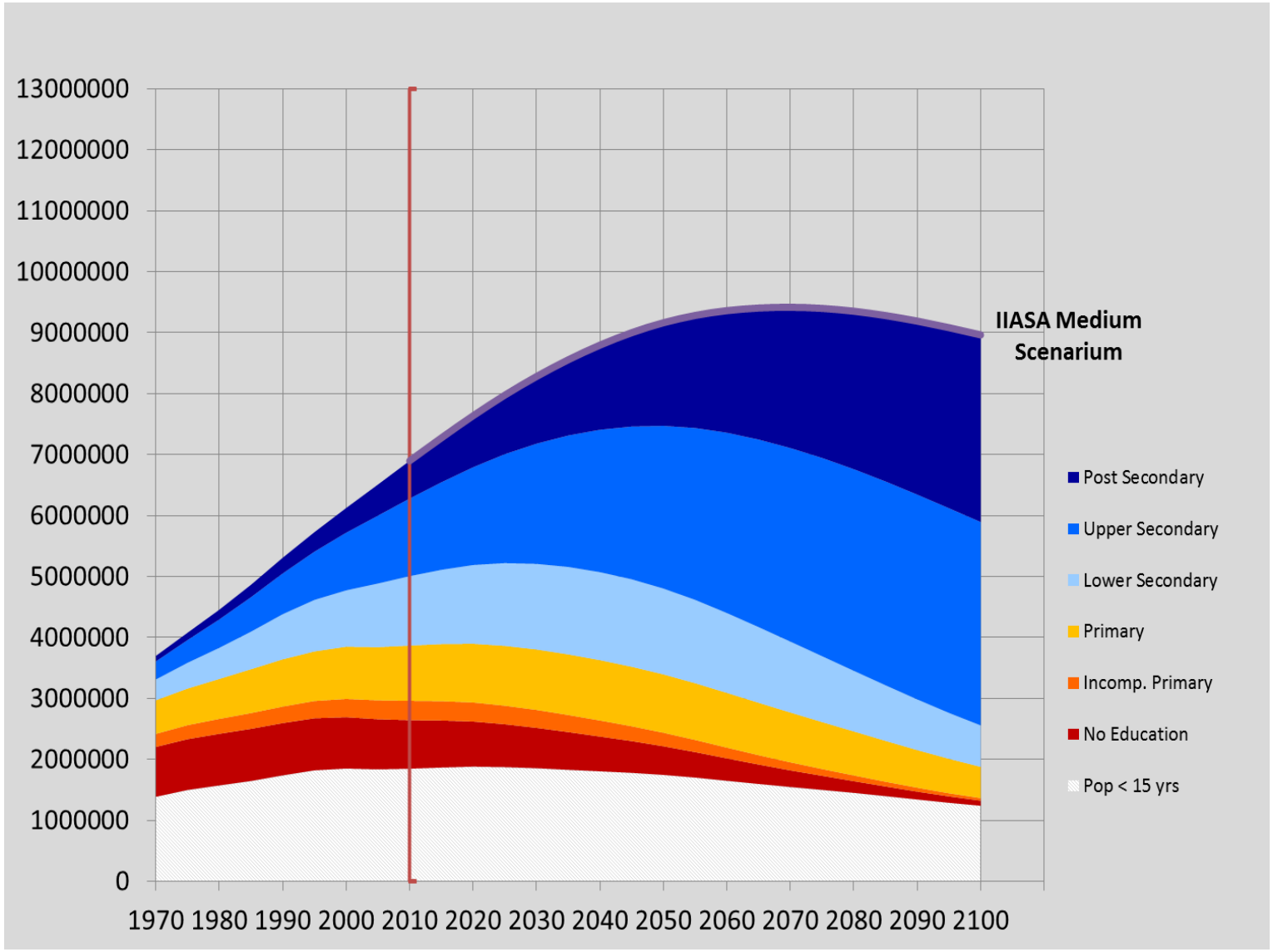
Co-funded by the
Erasmus+ Programme
of the European Union

Fertility rate and education

Women with more than secondary education tend to have fertility rates that are closer to replacement levels



Co-funded by the
Erasmus+ Programme
of the European Union

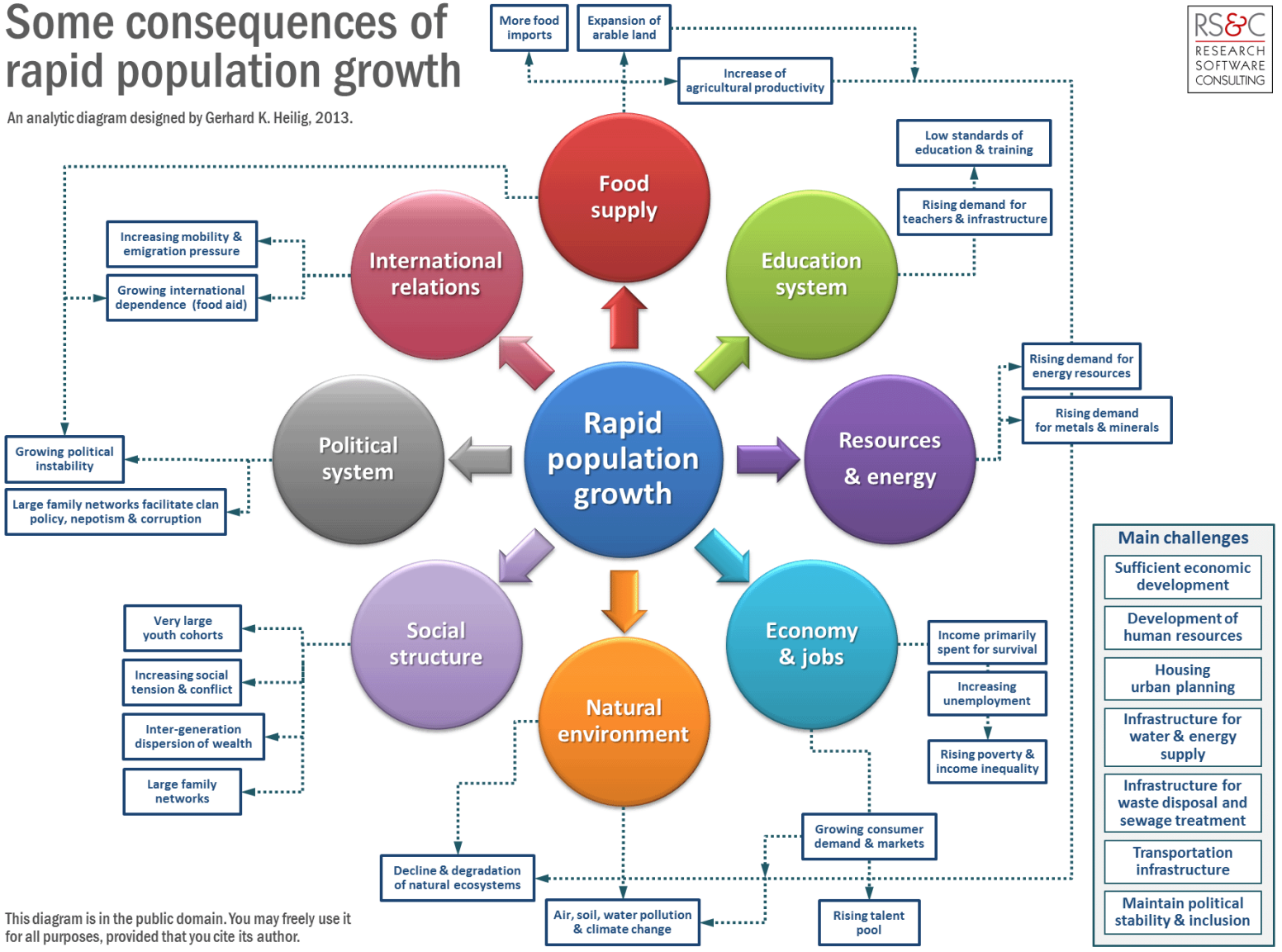


Co-funded by the
Erasmus+ Programme
of the European Union

Some consequences of rapid population growth

An analytic diagram designed by Gerhard K. Heilig, 2013.

RS&C RESEARCH SOFTWARE CONSULTING



Co-funded by the
Erasmus+ Programme
of the European Union

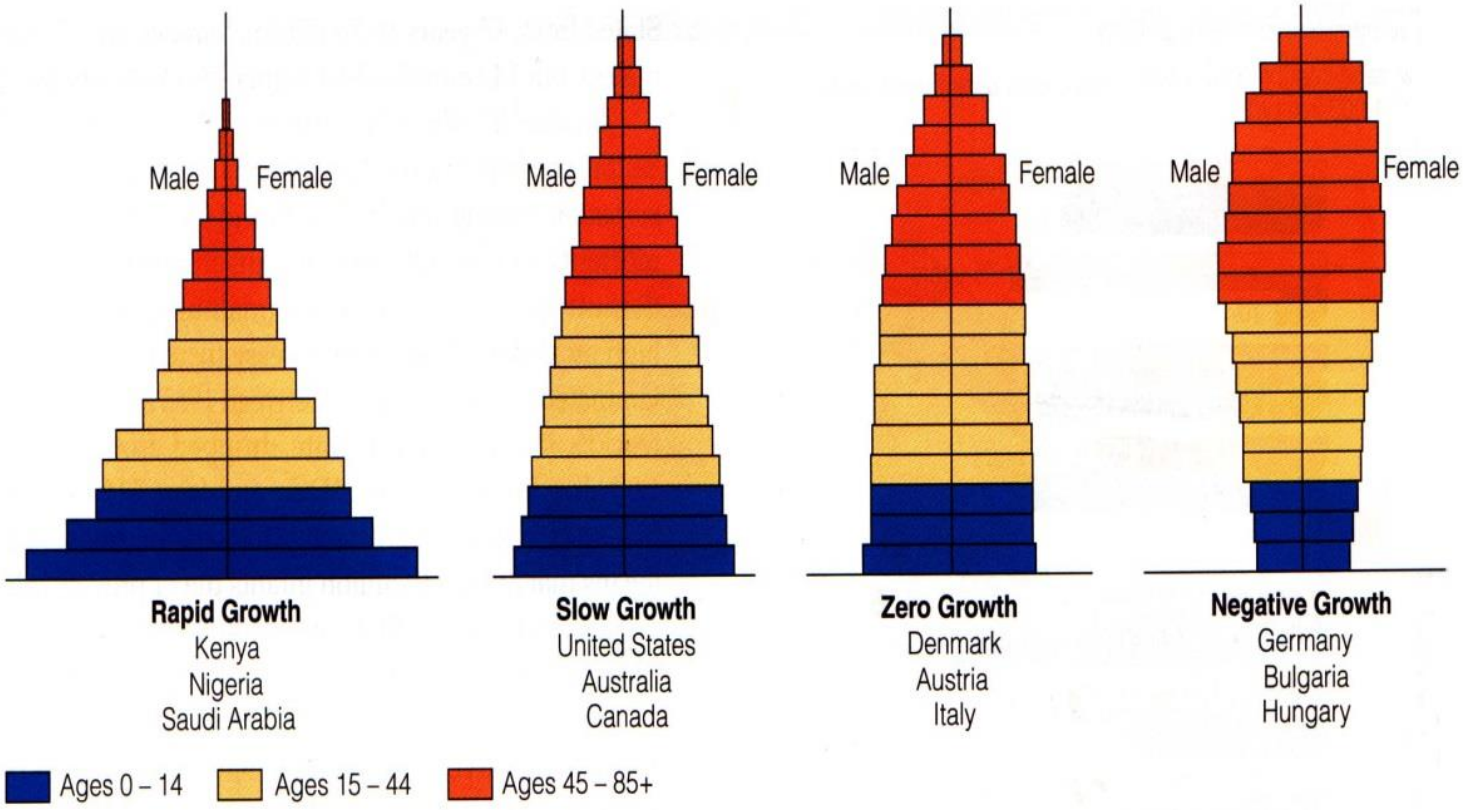
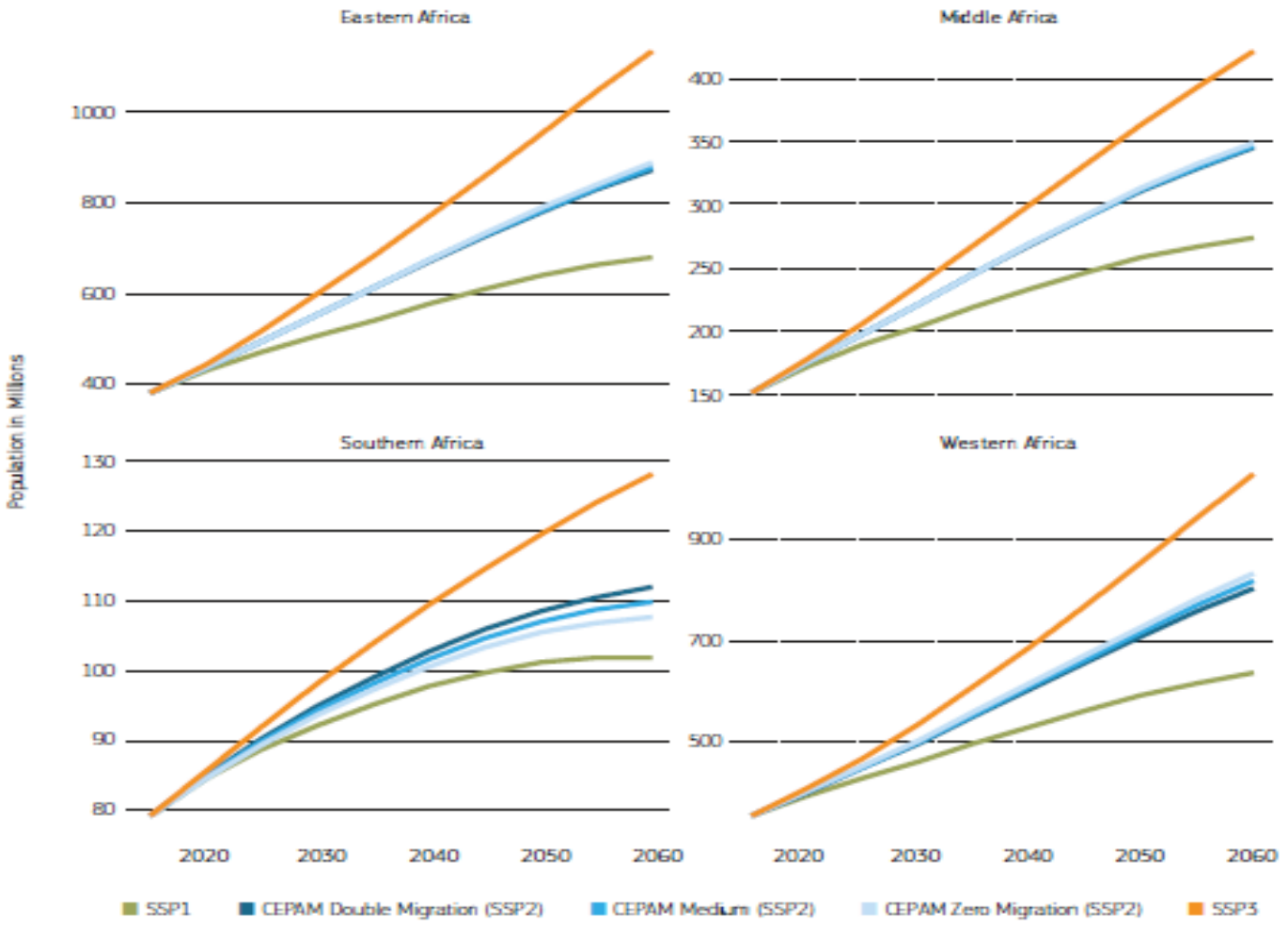


Figure 0 1 Population age structure diagrams for countries with rapid, slow, zero, and negative population growth rates. (Data from Population Reference Bureau)

Co-funded by the
Erasmus+ Programme
of the European Union

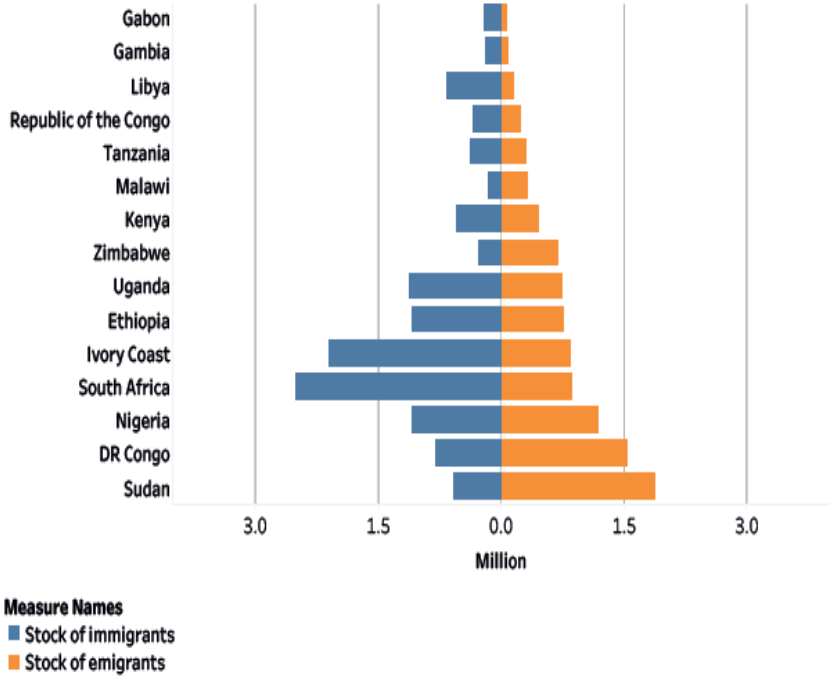
FIGURE 7.1: Projected population size in sub-Saharan regions (*Source:* own calculations)



Co-funded by the
Erasmus+ Programme
of the European Union

FIGURE 6. MIGRATION ON BALANCE – AFRICA'S MAIN COUNTRIES OF ORIGIN AND DESTINATION

Stock of immigrants and emigrants for selected African countries, 2017.



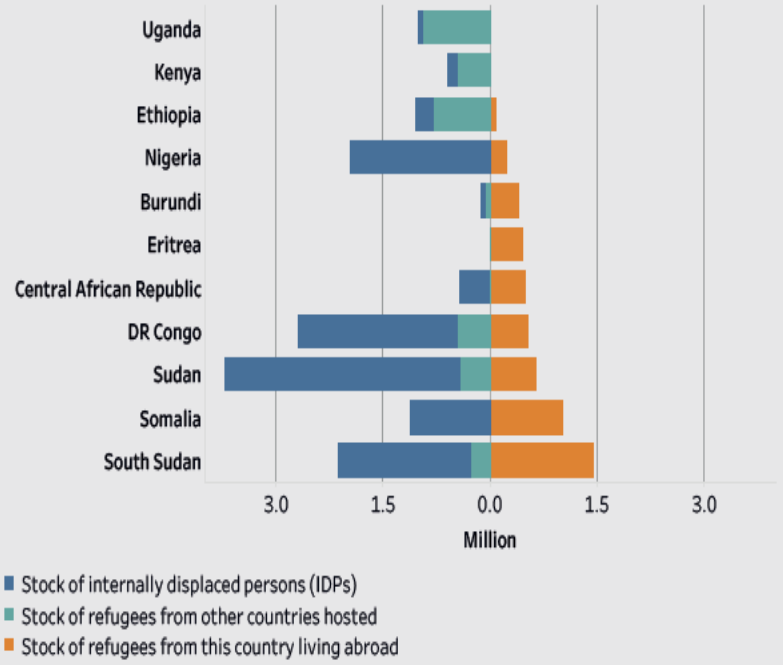
Note: 'immigrant' refers to foreign-born migrants residing in the listed country. 'Emigrant' refers to people born in the listed country currently residing outside their country of birth. Showing the top 15 African countries of destination and origin.

Source: UN Population Division, International Organisation for Migration; visualisation: Knowledge Centre on Migration and Demography (KCMD).

Co-funded by the
Erasmus+ Programme
of the European Union

FIGURE 7. FORCED MIGRATION ON BALANCE IN AFRICA'S MAIN REFUGEE-PRODUCING AND REFUGEE-RECEIVING COUNTRIES

Stock of refugees, stock of IDPs, 2016, absolute numbers, in millions.



Note: the figure shows the top African countries based on the stock of international refugees and internally displaced persons.

Source: United Nations High Commissioner for Refugees (UNHCR) and International Displacement Monitoring Centre, International Organisation for Migration; visualisation: Knowledge Centre on Migration and Demography (KCMD).